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AN EPIDEMIOLOGICAL STUDY ON CANCER IN JAPAN

The Report of the Committee for Epidemiological Study on Cancer, Sponsored by the Ministry of Welfare and Public Health (Chairman: Dr. Tomosaburo Ogata)

Tabulated and analysed by

M. SEGI, I. FUKUSHIMA, S. FUJISAKU, M. KURIHARA, S. SAITO, K. ASANO and M. KAMOI

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INTRODUCTION

During the three years from 1953 to 1955, the Committee for Epidemiological Study on Cancer,* which was organized in 1953 under the financial assistance of the Ministry of Welfare, carried out the epidemiological investigation covering many cancer patients and control cases distributed in the broad area of all over Japan. Nearly all the hospitals of medical schools in Japan, the Hospital of Foundation for Cancer Research and the First National Hospital in Tokyo participated in this investigation by presenting the records of cancer patients and also 420 health centers, approximately one half of the total health centers in Japan, contributed to the study by taking charge of collecting the records of control cases who were free from cancer. As a matter of fact, this investigation was motivated by the assignment for the author from the International Society of Geographical Pathology, which asked to present the data replying to the

* The Committee members are listed as follows;
Tomosaburo Ogata, M. D., Chairman (Professor Emeritus, Tokyo Univ. Medical School)
Akira Fujii, M. D. (Director, Health Department of Nara Prefecture)
Takeshi Hirayama, M. D. (Research fellow, Institute of Public Health)
Tamaki Kajitani, M. D. (Chief surgeon, Hospital of Foundation for Cancer Research)
Seizo Katsunuma, M. D. (President, Nagoya University)
Shigeki Mori, M. D. (Professor Emeritus, Kyoto Univ. Medical School)
Jun'ichi Ogata, M. D. (Professor of Internal Medicine, Nara Medical College)
Fukuzo Oshima, M. D. (Professor of Pathology, Nagoya Univ. Medical School)
Kikuo Otsuki, M. D. (Vice-director, First National Hospital in Tokyo)
Mitsuo Segi, M. D. (Professor of Public Health, Tohoku Univ. Medical School)
Katsuo Takeda, M. D. (Professor of Pathology, Hokkaido Univ. Medical School)
Sadamu Watanabe, M. D. (Consultant, Ministry of Welfare)
Tomizo Yoshida, M. D. (Professor of Pathology, Tokyo Univ. Medical School)

questionnaires provided for the fifth meeting of the Society held in Washington D. C. in September, 1954. The tabulation and the analysis of the data were put in charge of the members of the Department of Public Health of Tohoku University Medical School. The investigation consists of the following three parts;

1. Enumeration of the numbers of all the cancer cases hospitalized in the hospitals that participated in the investigation, the list of which is to be given in the next paragraph, within the period of 1948 through 1952, as classified by sex, age, and kind and site of cancer.

2. Epidemiological study on the individual cases of cancers of breast, uterus, liver, stomach, lung, prostate and esophagus treated at these hospitals.

3. Investigation on the medical care status of the in-patients with uterus cancer and stomach cancer hospitalized in these hospitals. The result of the study involved in this third part, however, will not be presented in this paper.

As a part of the study performed by the Committee, separately from this paper, Dr. Katsuo Takeda, professor of the Department of Pathology of Hokkaido University Medical School, worked out the data concerning biopsy and autopsy findings of cancer cases from the statistical view point on the basis of the records collected from the pathological laboratories of 43 medical schools and of three other institutions, the results of which were published already in "GANN", the Japanese Journal of Cancer Research, Vol. 46, Supplement, December, 1955.

The names of the hospitals that have cooperated with us in carrying out the investigation of the present paper are listed in the following.

Hospitals of:

Hokkaido University Medical School
Sapporo Medical College
Hirosaki University Medical School
Iwate Medical College
Tohoku University Medical School
Fukushima Medical College
Tokyo University Medical School
Keio University Medical School
Tokyo Medical and Dental College
Jikeikai Medical College
Nihon Medical College
Tokyo Medical College
Nihon University Medical School
Showa Medical College
Juntendo University Medical School
Tokyo Womens Medical College
Kyoto University Medical School
Kyoto Prefectural Medical College
Osaka University Medical School
Osaka Municipal Medical College
Kansai Medical College
Osaka Womens Medical College
Mie Medical College
Nara Medical College
Wakayama Medical College
Kobe Medical College
Okayama University Medical School
Hiroshima Medical College
Tottori University Medical School
Yamaguchi Medical College
Tokushima University Medical School
Kyushu University Medical School

Toho University Medical School
Gumma University Medical School
Yokohama Medical College
Shinshu University Medical School
Niigata University Medical School
Kanazawa University Medical School
Gifu University Medical School
Nagoya University Medical School
Nagoya Municipal Medical College
Kumamoto University Medical School
Nagasaki University Medical School
Kurume University Medical School
Kagoshima University Medical School
Foundation for Cancer Research
First National Hospital in Tokyo

I. Enumeration of the Hospitalized Cancer Cases

We have 46 medical schools here in Japan, out of which, 45 were listed above. The number of schools, the hospitals of which have sent in their schedule reports concerning the cancer cases hospitalized in all of their clinical sections without ommission during the five years of 1948 through 1952, was 31. Beside these 31 hospitals, the Hospital of Foundation for Cancer Research and the First National Hospital in Tokyo have also participated in this part of our investigation.

Our questionnaires to these hospitals contained the following items for each case of cancer in-patient: Date of admission, name, sex, date of birth or age, clinical diagnosis, histological diagnosis, existence of obvious metastasis, surgical operation and transposition to another section in the same hospital, if any.

In making the tabulation, the duplication of report with the patients, who visited two or more sections in a same hospital or two or more hospitals during the survey years, was checked accounting such case as one observation unit. When of the same case the clinical diagnosis and the histological finding were discrepant, the preferance was put in the latter in deciding the item to be classified in terms of diagnosis. The detailed list in the Sixth Revision of the International Classification of Diseases, Injuries and Causes of Death was followed in making the classification of diagnosis, but since this standard classification provides no division for carcinoma, sarcoma, etc., in our report, the seven major divisions of "carcinoma", "neoplasms of the lymphatic and the hematopoietic tissues", "sarcoma", "mixed cell tumor and teratoma", "tumor of the brain", "retinoglioma of the eye" and "other and unspecified malignant neoplasms" have been adopted. In the "carcinoma", "sarcoma" and "other and unspecified malignant neoplasms" cases, the classification of the site of cancer development has been made applying the corresponding classification used for "malignant neoplasms" in the International Classification. The sings of C, S and N, which appear in Tables 1 and 4 preceding the international detailed list numbers represent that the case falls under the major headings of "carcinoma", "sarcoma"

and "other and unspecified malignant neoplasms" respectively. All the cases reported as suffering from tumors of brain have been included under the heading of "tumor of the brain" regardless of the kind of tumor, since it is hard to distinguish between benign and malignant cases of such tumors. The malignant neoplasms of the pituitary and the pineal glands are included under 195 "malignant neoplasms of other endocrine glands" of the international detailed list, but seeing the possibility of such neoplasms being mixed up in the cases simply described as brain tumors, in our survey, we have excluded these from the item No. 195 and comprised them, either explicitly stated malignant or not, under the heading of "tumors of the brain". Under the heading C 194 "carcinoma of thyroid gland" in Table 1, malignant goiter has been also included. The cases of carcinoma with the classification number of C 155, "carcinoma of biliary passages and of liver (stated to be primary site)", have been subdivided into the two items of C 155 a "carcinoma of liver (stated to be primary site)" and of C 155 b "carcinoma of biliary passages". The cases falling under 198 "secondary and unspecified malignant neoplasm of lymph nodes" in the International Detailed List have been included in C 199 "carcinoma of other and unspecified sites" in our survey. The results of our survey are summarised in Tables 1, 2 and 4.

Table 1 indicates the number of cancer cases that were hospitalized in the period of 1948 through 1952 in the hospitals of the 31 medical schools from which the schedule reports have been submitted from all the sections, one national hospital and one cancer hospital, as classified by kind and site of malignant neoplasms. The schedule reports presented by those hospitals whose participation in this survey did not cover all of their sections but only partly were excluded from the present tabulation. The number of cases reported from the Hospital of Foundation for Cancer Research has been indicated separately from other data taking the special situation of the hospital into consideration.

The percentage of the cancers classified by site to the total case number reported by the said hospitals except the Hospital of Foundation for Cancer Research are shown in Table 2. As indicated therein, of the male cases, carcinoma of digestive organs and peritoneum accounts for 60.1%, of which 42.5% is occupied by carcinoma of stomach, followed by that of rectum with 4.6%, of liver and biliary passages with 4.4% and esophagus with 4.3%. The system coming next is respiratory system (10.9%), then buccal cavity and pharynx (3.3%), urinary organs (2.7%) and male genital organs (2.4%). Saying on the neoplasms other than carcinoma, neoplasms of lymphatic and haematopoietic tissues account for 6.6% and sarcoma of all sites for 4.1%. Of the female cases, carcinoma of female genital organs leads the list with 54.7%, carcinoma of uterus accounting for

Table 1. Number of Cases Hospitalized for Malignant Neoplasms (Including Brain Tumors of Benign Nature and of Unknown Malignance) by Sex, Kind and Site, 1948–1952 (In 33 hospitals whence reports were sent in from all sections)

Kind and site	31 Hospitals of Medical Schools and one National Hospital		Hospital of Foundation for Cancer Research	
	Male	Female	Male	Female
Total	13,563	18,630	1,211	1,223
C Carcinoma—total	11,282	17,081	1,170	1,201
C 140~148 Carcinoma of buccal cavity and pharynx	447	214	102	56
C 140 Lip	26	10	2	—
C 141 Tongue	211	113	64	41
C 142 Salivary gland	17	11	5	3
C 143 Floor of mouth	27	5	4	—
C 144 Other parts of mouth and mouth unspecified	72	21	17	10
C 145 Oral mesopharynx	22	12	6	1
C 146 Nasopharynx	24	12	2	1
C 147 Hypopharynx	13	20	—	—
C 148 Pharynx unspecified	35	10	2	—
C 150~159 Carcinoma of digestive organs and peritoneum	8,157	4,004	811	364
C 150 Oesophagus	586	168	120	31
C 151 Stomach	5,768	2,719	558	254
C 152 Small intestine, includiug duodenum	25	10	3	1
C 153 Large intestine, except rectum	258	194	26	13
C 154 Rectum	626	410	62	35
C 155a Liver (stated to be primary site)	128	39	3	2
C 155b Biliary passages	151	107	11	10
C 156 Liver (secondary and unspecified)	324	157	12	5
C 157 Pancreas	219	128	16	10
C 158 Peritoneum	47	57	—	2
C 159 Unspecified digestive organ	1	2	—	—
C 150+C 151	6	2	—	—
C 151+C 152	—	1	—	—
C 151+C 153	4	—	—	1
C 151+C 154	3	4	—	—
C 151+C 157	11	5	—	—
C 153+C 157	—	1	—	—
C 160~165 Carcinoma of respiratory system	1,482	503	209	52
C 160 Nose, nasal cavity, middle ear, and accessory sinuses	584	340	66	32
C 161 Larynx	584	82	122	16
C 162 Trachea, bronchus and lung specified as primary	31	7	—	—
C 163 Lung and bronchus, unspecified as to whether primary or secondary	273	68	19	4
C 164 Mediastinum	5	4	—	—
C 165 Thoracic organs (secondary)	5	2	2	—
C 170~181 Carcinoma of breast and genito-urinary organs	721	11,942	14	707

Kind and site		31 Hospitals of Medical Schools and one National Hospital		Hospital of Foundation for Cancer Research	
		Male	Female	Male	Female
C 170	Breast	29	1,616	1	196
C 171	Cervix uteri	•	8,300	•	437
C 172	Corpus uteri	•	260	•	19
C 173	Other parts of uterus, including chorionepithelioma	•	291	•	1
C 174	Uterus, unspecified	•	960	•	25
C 175a	Ovary	•	191	•	5
C 175b	Fallopian tube and broad ligament	•	3	•	1
C 176	Other and unspecified female genital organs	•	189	•	19
C 177	Prostate	136	•	—	•
C 178	Testis	70	•	1	•
C 179	Other and unspecified male genital organs	125	•	9	•
C 180	Kidney	98	37	2	2
C 181	Bladder and other urinary organs	262	95	1	2
C 177+C 179		1	•	—	•
C 190~199	Carcinoma of other and unspecified sites	472	412	34	20
C 190	Melanocarcinoma of skin	8	7	2	1
C 191	Other carcinoma of skin	173	120	15	7
C 192	Eye	—	1	—	—
C 193	Nervous system (excluding brain)	7	2	1	—
C 194	Thyroid gland (including malignant goitre)	51	136	4	7
C 195	Other endocrine glands (excluding pituitary gland and pineal gland)	4	2	—	—
C 196	Bone (including jaw bone)	18	8	—	—
C 197	Connective tissue	2	2	—	—
C 199	Other and unspecified sites	209	134	12	5
C 151+C 163		1	—	—	—
C 151+C 170		1	3	—	—
C 151+C 172		•	1	•	—
C 151+C 174		•	1	•	—
C 151+C 176		•	1	•	—
C 151+C 180		1	—	—	—
C 151+C 194		—	—	—	1
C 153+C 160		—	—	—	1
200~205	Neoplasms of lymphatic and haematopoietic tissues	891	481	15	9
200	Lymphosarcoma and reticulosarcoma	370	181	10	7
200.0	Reticulum cell sarcoma	219	103	8	7
200.1	Lymphosarcoma	134	72	2	—
200.2	Other primary malignant neoplasms of lymphoid tissue	17	6	—	—
201	Hodgkin's disease	85	21	—	—
202	Other forms of lymphoma (reticulosis)	8	4	—	—
203	Multiple myeloma (plasmocytoma)	5	4	1	—
204	Leukaemia and aleukaemia	422	269	4	2
204.0	Lymphatic leukaemia	79	37	—	—
204.1	Myeloid leukaemia	291	187	2	1
204.2~4	Other and unspecified leukaemia	52	45	2	1

Kind and site	31 Hospitals of Medical Schools and one National Hospital		Hospital of Foundation for Cancer Research	
	Male	Female	Male	Female
205 Mycosis fungoides	1	2	—	—
S Sarcoma—total	562	432	14	5
S 140~148 Buccal cavity and pharynx	51	34	2	—
S 150~159 Digestive organs and peritoneum	56	37	—	1
S 160~165 Respiratory system	67	42	1	1
S 170~181 Breast and genito-urinary organs	30	93	—	1
S 190~199 Other and unspecified sites	358	226	11	2
Mixed cell tumor and teratoma	43	39	1	—
Tumor of brain (including benign and unspecified nature, including pituitary gland and pineal gland)	333	239	—	—
Retinoglioma of eye	89	64	—	—
N Other and unspecified malignant neoplasms	380	294	11	8
N 140~148 Buccal cavity and pharynx	25	21	—	2
N 150~159 Digestive organs and peritoneum	42	50	1	3
N 160~165 Respiratory system	106	56	6	—
N 170~181 Breast and genito-urinary organs	81	67	1	1
N 190~199 Other and unspecified sites	126	100	3	2
C 151+200.0	1	—	—	—
204.1+S 196 (Sarcoma of bone)	1	—	—	—
C 148+S 199 (Sarcoma of unspecified site)	1	—	—	—

52.7% in it, including chorionepithelioma. The percentage of carcinoma of uterus cases to the total cases is found: Carcinoma of cervix uteri, 44.6%, of corpus uteri, 1.4% and chorionepithelioma, 1.6%, while carcinoma of uterus with no mention of specific site accounts for 5.2%. Carcinoma of ovary was recorded in 1.0% of the total cases. The second system is digestive organs and peritoneum, accounting for 21.5%, comprising carcinoma of stomach with 14.6%, rectum with 2.2%, liver and biliary passages with 1.6% and esophagus with 0.9%. The third major heading in females is carcinoma of breast, occupying 8.7% of the total, followed by carcinoma of respiratory system with 2.7%. Neoplasms of lymphatic and haematopoietic tissues indicate 2.6% of total cases and sarcoma of all sites, 2.3%.

It must be specially noted that the above cited percentages of cancer cases classified by site are assumed to be rather widely different from the actual distribution of such cancers among the general population. For example, the percentage for cancer of uterus we obtained from our investigation is inferred to be overrated, owing to the fact that the uterus cancer is one of the most accessible cancers and is relatively easy to detect, and, therefore, cases with uterus cancer tend to visit hospitals in the early stage of the disease.

Table 2. Percentages of Cases Hospitalized for Malignant Neoplasms Classified by Kind and Site (In 31 hospitals of medical schools and one national hospital which have sent in reports from all sections)

Kind and site	Male		Female	
	Number	%	Number	%
Total	13,583	100.0	18,630	100.0
Carcinoma—total	11,282	83.1	17,081	91.7
Buccal cavity and pharynx	447	3.3	214	1.1
Digestive organs and peritoneum	8,157	60.1	4,004	21.5
Oesophagus	586	4.3	168	0.9
Stomach	5,768	42.5	2,719	14.6
Rectum	626	4.6	410	2.2
Liver and biliary passages	603	4.4	303	1.6
Respiratory system	1,482	10.9	503	2.7
Breast	29	0.2	1,616	8.7
Female genital organs	•	•	10,194	54.7
Uterus (including chorionepithelioma)	•	•	9,811	52.7
Ovary	•	•	191	1.0
Male genital organs	331	2.4	•	•
Urinary organs	360	2.7	132	0.7
Other and unspecified sites	476	3.5	418	2.2
Neoplasms of lymphatic and haematopoietic tissues	891	6.6	481	2.6
Sarcoma	562	4.1	432	2.3
Other	848	6.2	636	3.4

Table 3. Deaths and Death Rates for Malignant Neoplasms Classified by Sex and Site, and the Percentages thereof by Site (All Japan, 1954)

Site	Male			Female		
	Number	Rate	%	Number	Rate	%
Total	39,703	91.5	100.0	35,606	79.3	100.0
Buccal cavity and pharynx	410	0.9	1.0	246	0.5	0.7
Digestive organs and peritoneum	32,112	74.0	80.9	21,266	47.3	59.7
Oesophagus	2,115	4.9	5.3	849	1.9	2.4
Stomach	22,116	51.0	55.7	13,875	30.9	39.0
Intestines	720	1.7	1.8	945	2.1	2.7
Rectum	1,351	3.1	3.4	1,207	2.7	3.4
Liver and biliary passages	4,800	11.1	12.1	3,466	7.7	9.7
Pancreas	570	1.3	1.4	448	1.0	1.3
Respiratory system	2,567	5.9	6.5	1,147	2.6	3.2
Breast	26	0.1	0.1	1,526	3.4	4.3
Female genital organs	•	•	•	8,257	18.4	23.2
Uterus	•	•	•	7,703	17.2	21.6
Other female genital organs	•	•	•	554	1.2	1.6
Male genital organs	393	0.9	1.0	•	•	•
Urinary organs	674	1.6	1.7	406	0.9	1.1
Skin	288	0.7	0.7	272	0.6	0.8
Neoplasms of lymphatic and haematopoietic tissues	1,744	4.0	4.4	1,186	2.6	3.3
Leukaemia and aleukaemia	1,122	2.6	2.8	747	1.7	2.1

For the comparison, the outline of cancer mortality data based on the official vital statistics reports of Japan in the year 1954 was presented in Table 3. In this table, however, the figures for mortality classified into carcinoma, sarcoma, etc. were not available owing to the lack of data.

The number of hospitalized cancer cases classified by site, sex and age-group is given in Table 4. In this table, the figure include, besides the data from the above-mentioned 31 hospitals of medical schools and the First National Hospital in Tokyo, the data from the Hospital of Foundation for Cancer Research and other 12 hospitals of medical schools, whose participation in this investigation did not cover all sections, always checking the duplication of reporting.

Table 4. Number of In-patients with Malignant Neoplasms Classified by Sex, Age-group, Kind and Site, 1948-1952 (In 43 hospitals of medical schools and two other hospitals)

Age-group	C 140~148 Carcinoma of buccal cavity and pharynx		C 141 Carcinoma of tongue		C 150~159 Carcinoma of digestive organs and peritoneum		C 150 Carcinoma of oesophagus		C 151 Carcinoma of stomach	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
All ages	643	316	325	178	10,585	5,098	784	229	7,552	3,465
0~ 4 years	1	—	—	—	3	8	—	—	—	1
5~ 9	—	1	—	—	1	—	—	—	—	—
10~14	—	—	—	—	2	1	—	—	1	—
15~19	2	1	—	—	17	10	—	—	10	5
20~24	10	7	3	2	44	52	3	1	29	43
25~29	11	10	9	6	139	136	6	2	85	99
30~34	12	13	8	6	265	261	10	2	199	191
35~39	33	19	21	13	584	454	17	8	425	337
40~44	50	37	25	26	1,029	638	35	25	767	468
45~49	81	49	48	19	1,446	768	63	25	1,105	559
50~54	102	47	47	29	1,959	830	135	30	1,471	555
55~59	110	45	58	27	2,037	787	189	61	1,443	520
60~64	94	36	46	19	1,645	619	174	38	1,109	382
65~69	71	24	30	16	889	316	89	15	587	181
70~74	44	13	22	8	326	118	47	7	196	69
75~79	11	10	3	6	91	40	12	7	50	17
80~84	3	2	2	1	10	3	1	1	6	1
85 years and over	—	—	—	—	2	2	—	—	1	2
Age unknown	8	2	3	—	96	57	3	7	68	35

Age-group	C 153 Carcinoma of large intestine, except rectum		C 154 Carcinoma of rectum		C 155a Carcinoma of liver (stated to be primary site)		C 155b Carcinoma of biliary passages		C 156 Carcinoma of liver (secondary and unspecified)	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
All ages	327	250	830	527	147	52	171	131	393	187
0~ 4 years	—	—	—	—	2	4	—	—	1	3
5~ 9	—	—	—	—	—	—	—	—	1	—
10~14	1	—	—	1	—	—	—	—	—	—
15~19	1	—	2	3	2	—	—	—	1	1
20~24	1	1	3	5	4	—	—	—	2	—
25~29	6	7	21	15	2	—	4	3	7	2
30~34	8	13	22	27	11	2	4	3	6	5
35~39	20	20	58	44	10	2	6	6	24	13
40~44	34	24	85	61	16	5	20	15	36	15
45~49	40	18	88	78	19	12	12	15	59	26
50~54	51	46	130	85	24	9	20	18	68	42
55~59	46	28	147	80	30	4	27	23	76	35
60~64	52	41	128	65	19	10	45	28	65	23
65~69	38	32	86	41	4	4	26	13	26	13
70~74	19	12	33	13	2	—	4	5	11	2
75~79	4	4	17	6	1	—	2	—	2	2
80~84	—	—	2	—	—	—	—	1	—	—
85 years and over	—	—	1	—	—	—	—	—	—	—
Age unknown	6	4	7	3	1	—	1	1	8	5

Age-group	C 157 Carcinoma of pancreas		C 160~165 Carcinoma of respiratory system		C 160 Carcinoma of nose, nasal cavity, middle ear and accessory sinuses		C 161 Carcinoma of larynx		C 162 Carcinoma of trachea, bronchus and lung specified as primary	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
All ages	267	160	1,966	636	747	436	837	109	31	8
0~ 4 years	—	—	1	—	—	—	—	—	—	—
5~ 9	—	—	—	—	—	—	—	—	—	—
10~14	—	—	—	—	—	—	—	—	—	—
15~19	1	1	5	2	3	1	—	1	1	—
20~24	1	2	11	7	9	7	1	—	—	—
25~29	6	3	19	11	15	5	—	3	1	—
30~34	2	8	31	28	20	20	3	3	1	1
35~39	17	14	80	50	49	43	14	3	3	—
40~44	20	15	147	68	81	58	39	2	1	1
45~49	41	20	237	87	114	66	85	6	4	2

Age-group	C 157 Carcinoma of pancreas		C 160~165 Carcinoma of respiratory system		C 160 Carcinoma of nose, nasal cavity, middle ear and accessory sinuses		C 161 Carcinoma of larynx		C 162 Carcinoma of trachea, bronchus and lung specified as primary	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
50~54	41	27	331	107	116	73	149	21	6	1
55~59	63	26	365	99	120	55	175	25	5	1
60~64	40	22	352	92	94	57	180	25	7	2
65~69	24	13	202	41	62	22	94	11	—	—
70~74	9	5	113	25	37	14	60	8	2	—
75~79	1	3	30	9	15	9	12	—	—	—
80~84	1	—	1	4	—	2	1	1	—	—
85 years and over	—	—	1	—	—	—	1	—	—	—
Age unknown	—	1	40	6	12	4	23	—	—	—

Age-group	C 163 Carcinoma of lung and bronchus, unspecified as to whether primary or secondary		C 170 Carcinoma of breast		C 171~176 Carcinoma of female genital organs	C 171 Carcinoma of cervix uteri	C 172 Carcinoma of corpus uteri	C 173 Carcinoma of other parts of uterus, including chorionepithelioma
	Male	Female	Male	Female	Female	Female	Female	Female
All ages	337	77	46	2,197	13,056	10,479	365	367
0~ 4 years	—	—	—	—	2	—	—	—
5~ 9	—	—	—	—	1	—	—	1
10~14	—	—	—	—	3	—	—	1
15~19	1	—	—	2	10	1	—	1
20~24	1	—	3	12	63	18	—	37
25~29	3	3	—	61	222	110	3	76
30~34	7	3	1	169	623	457	7	61
35~39	14	3	1	285	1,518	1,242	22	61
40~44	25	6	4	430	2,326	1,903	39	60
45~49	31	13	5	427	2,491	2,036	71	47
50~54	57	11	10	256	2,259	1,836	86	13
55~59	63	17	3	237	1,624	1,356	52	3
60~64	69	8	8	145	1,048	849	46	2
65~69	45	7	6	88	481	380	23	—
70~74	13	3	4	43	166	137	3	—
75~79	3	—	1	16	43	30	3	—
80~84	—	1	—	2	4	3	—	—
85 years and over	—	—	—	—	1	—	—	—
Age unknown	5	2	—	24	171	121	10	4

Age-group	C 174 Carcinoma of uterus, unspecified	C 175a Carcinoma of ovary	C 177~179 Carcinoma of male genital organs	C 177 Carcinoma of prostate	C 178 Carcinoma of testis	C 180~181 Carcinoma of urinary organs	
	Female	Female	Male	Male	Male	Male	Female
All ages	1,327	255	410	160	85	433	164
0~ 4 years	—	1	11	—	11	4	3
5~ 9	—	—	6	—	6	—	2
10~14	—	2	1	—	1	3	—
15~19	1	7	2	1	1	1	—
20~24	2	6	4	—	3	2	5
25~29	12	15	18	—	12	4	5
30~34	66	23	18	1	11	6	2
35~39	151	22	25	2	8	18	9
40~44	258	33	27	2	11	22	14
45~49	275	38	50	11	12	44	16
50~54	240	38	37	12	2	62	24
55~59	142	33	48	18	1	79	24
60~64	100	16	48	25	4	72	29
65~69	37	9	53	40	1	63	13
70~74	14	2	34	24	1	23	10
75~79	2	3	15	13	—	16	7
80~84	—	1	5	4	—	4	—
85 years and over	1	—	2	2	—	1	—
Age unknown	26	6	6	5	—	9	1

Age-group	C 190~199 Carcinoma of other and unspecified sites		C 190~191 Carcinoma of skin		C 194 Carcinoma of thyroid gland (including malignant goitre)		200~205 Neoplasms of lymphatic and haematopoietic tissues		200 Lymphosarcoma and reticulosarcoma	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
All ages	609	532	233	155	65	166	1,067	590	467	242
0~4 years	1	2	—	—	—	—	107	79	20	12
5~9	2	2	—	1	—	1	56	44	14	8
10~14	2	1	—	1	1	—	53	27	12	6
15~19	5	4	1	1	1	1	80	38	24	11
20~24	14	16	3	2	3	9	70	37	31	15
25~29	14	12	9	—	2	5	82	40	29	16
30~34	14	32	9	6	1	12	59	51	27	25
35~39	31	39	15	10	5	16	91	45	44	11
40~44	36	68	13	18	3	21	75	39	30	23
45~49	74	57	30	19	9	13	85	43	48	24

Age-group	C 190~199 Carcinoma of other and unspecified sites		C 190~191 Carcinoma of skin		C 194 Carcinoma of thyroid gland (including malignant goitre)		200~205 Neoplasms of lymphatic and haematopoietic tissues		200 Lymphosarcoma and reticulosarcoma	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
50~54	107	78	38	22	7	25	83	44	48	27
55~59	82	61	27	13	12	18	80	33	45	20
60~64	96	75	39	20	11	23	52	24	37	14
65~69	71	30	24	13	8	10	37	18	25	15
70~74	38	27	15	13	2	6	20	7	16	5
75~79	10	12	6	11	—	1	6	5	5	4
80~84	5	7	3	2	—	3	1	2	1	1
85 years and over	1	—	1	—	—	—	—	—	—	—
Age unknown	6	9	—	3	—	2	30	14	11	5

Age-group	201 Hodgkin's disease		204.0 Lymphatic leukaemia		204.1 Myeloid leukaemia		204. 2~4 Other and unspecified leukaemia		S 140~148 Sarcoma of buccal cavity and pharynx	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
All ages	98	26	98	44	326	214	59	52	57	36
0~ 4 years	2	2	27	21	46	31	11	11	2	—
5~ 9	4	—	12	8	23	21	3	6	1	1
10~14	2	—	10	4	25	15	3	2	7	—
15~19	2	1	8	1	40	21	5	3	5	—
20~24	3	—	6	3	26	13	3	5	3	5
25~29	8	1	5	1	36	18	1	3	3	1
30~34	4	3	3	1	20	18	5	4	3	4
35~39	8	2	6	—	28	27	3	4	2	1
40~44	12	2	2	—	25	12	5	2	8	5
45~49	13	5	5	2	15	11	2	—	3	7
50~54	10	—	3	1	16	11	4	3	3	3
55~59	13	4	5	—	12	7	3	1	6	4
60~64	9	3	2	—	2	4	2	3	3	1
65~69	5	2	1	—	4	—	—	1	6	1
70~74	1	1	—	—	1	—	1	—	—	—
75~79	—	—	—	1	—	—	1	—	2	1
80~84	—	—	—	—	—	1	—	—	—	—
85 years and over	—	—	—	—	—	—	—	—	—	—
Age unknown	2	—	3	1	7	4	7	4	—	2

Age-group	S 150~159 Sarcoma of digestive organs and peritoneum		S 160~165 Sarcoma of respiratory system		S 170~181 Sarcoma of breast and genito-urinary organs		S 190~199 Sarcoma of other and unspecified sites		Mixed cell tumor and teratoma		Tumor of brain including benign and unspecified nature, including pituitary gland and pineal gland	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
All ages	69	46	76	46	39	113	446	251	51	48	385	273
0~ 4 years	4	1	—	2	9	5	28	26	13	10	19	16
5~ 9	1	—	2	—	1	2	17	6	3	3	47	26
20~14	—	2	5	—	3	6	20	23	1	1	27	11
15~19	2	—	3	3	2	5	41	41	2	1	34	15
20~24	2	7	3	1	—	8	47	22	4	3	49	24
25~29	8	2	10	5	1	9	35	13	3	3	31	27
30~34	6	3	5	6	3	9	23	12	1	5	34	38
35~39	6	3	5	3	6	9	36	17	2	2	36	30
40~44	8	6	6	8	1	14	26	14	3	2	34	25
45~49	4	4	5	5	5	16	30	14	2	1	24	23
50~54	11	5	12	3	1	10	40	15	6	6	22	17
55~59	7	6	5	3	3	6	38	23	3	6	16	8
60~64	2	5	8	5	1	10	25	10	2	4	4	1
65~69	6	—	2	—	3	3	21	9	4	—	1	—
70~74	—	1	5	—	—	1	4	5	—	1	—	1
75~79	1	—	—	1	—	—	7	1	—	—	1	—
80~84	—	—	—	1	—	—	—	—	—	—	—	—
85 years and over	—	—	—	—	—	—	—	—	1	—	—	—
Age unknown	1	1	—	—	—	—	8	—	1	—	6	11

II. Results of the Epidemiological Study on the Basis of Detailed Case Investigations

For performing the epidemiological study by the case investigation, the records of the following numbers of eight site-specific carcinoma cases were collected from the hospitals of medical schools and the Hospital of Foundation for Cancer Research that participated in the investigation; (Hereunder, the word of "cancer" will be used for "carcinoma".)

Breast cancer	647 cases (including 3 male cases)
Uterus cancer	1,959 cases (including 78 corpus cancer cases)
Stomach cancer	2,475 cases
Primary liver cancer	181 cases
Biliary passage cancer	58 cases
Primary lung cancer	207 cases
Esophagus cancer	86 cases

Prostate cancer 69 cases

Of these eight sites, we will give the results of their epidemiological study only for four sites, breast, uterus, stomach and lung. The numbers of cases of other four sites collected were too small to make any statistical observation. The informations concerning the cases used as controls in statistical comparison have been checked and recorded on forms by the members of the health centers distributed in the whole areas of Japan upon our request. We had 758 local health centers in total in 1953, the year we started our investigation, and the number of the local health centers, that participated in our study and 7,803 records of control cases were collected from, was 420. The number of the control cases is shown in Table 5 as classified by sex, age and urban and rural.

Table 5. Number of Control Cases by Sex, Age-group and Urban and Rural

Age	Male		Female	
	Urban	Rural	Urban	Rural
All ages	1,650	2,275	1,636	2,242
0～29 years	16	17	21	13
30～34	74	91	81	99
35～39	89	116	82	118
40～44	210	271	215	259
45～49	194	266	188	251
50～54	279	376	286	417
55～59	259	322	241	294
60～64	211	357	203	331
65～69	161	231	157	224
70～74	84	140	90	135
75～79	56	66	53	67
80 years and over	17	22	19	34

At the time of requesting the investigation on the control cases to the health centers, we allotted the number of cases to be checked so that the sex and age distribution of all controls would approximately be equal to that of cancer cases of all sites, but the selection of the individual control cases in other criteria than age, sex and that they were free from cancer was left to the members of the health centers at their disposal. Owing to such method of purposive selection of control cases we used, we have to confess that the cases thus collected could not become the precise random samples of the general Japanese population in the strict statistical meaning. However, since the cancer cases do not necessarily occur from the general population by equal chance in terms of other criteria than sex and age and, moreover, the cancer cases under the observation of large hospitals are considered to be the samples from the universe of cancer cases with a certain bias, we might say that the precise samples of the general population would not necessarily be the ideal control cases. At any rate, in spite of our discontent in the method of collecting the control cases, we decided to utilize them in our observation considering them the best available materials within the capacity of our investigation. In the instance when the difference in

age distribution between the site-specific cancer cases and the control cases was presumed to cause the deviation of the result data, the figures for the controls were readjusted in terms of age distribution so as to assure its agreement with that of the cancer cases of the individual site. In the following tables which show the figures of the control cases subjected to such adjustment, the symbol of "co." is put into the titles of the tables. In some cases, we have taken the population data or the results of studies by other researchers concerning the general population as our standard of comparison with the data of the cancer cases. The items checked in our investigation were as follows.

(I) Items Checked with the Control Cases

1. A. Name
   B. Address
   C. Sex
   D. Date of Birth
   E. Occupation, mainly responsible for the maintenance of the family livelihood.
2. Occupation of the subject

   All past and present occupations to be given in details. Full particulars as possible on the kind, the length of engagement and age of beginning work required when the subject is or has been engaged in mines, collieries, stone quarries, railroad and automobile business or any occupation involving handling of coal, coaltar, asphalt, petroleum, mineral oils, arsenic substances, aniline and other dyes or other chemicals.
3. Blood Type in ABO System
4. Body Type

   Whether of stout, medium or lean type, in youth and at present.
5. Marital Status

   In actual state viewed physically, and not in either legal or ecclesiastic meaning.
   A. Married or ever married: Yes or No
   B. If married or ever married
      a. Calender year of first marriage
      b. If has ever lived apart from spouse for more than one year, the first and the last years of separate living.
      c. The year of divorce or remarriage, if any.
      d. If the spouse is dead, the year of his or her death.
      e. The age of the spouse, if in life.
6. Family History
   A. Parents and Siblings

a. Father

1. If alive, his age
2. If dead, his age of death, the age of the subject at his death and the cause of his death
3. Whether he ever had cancer. If yes, his age at onset of cancer and the site developed

b. Mother

The same items as in a above.

c. Brothers and sisters

The same as in a above.

B. If any of the grandparent, either of the paternal or the maternal side, had cancer, his or her family relation to the subject and the site developed

C. Ditto among the siblings of the parents.

7. Life Habits Related with Taking Meal

A. Staple food

Rice (unpolished, half-polished or polished), barley, wheat, millet, potatoes or other cereals as daily staple food.

B. Quantity of food

Heavy, medium or light eater (in accordance with the subject's estimation)

C. Like and dislike of food articles

Does the subject has special like or dislike for any of the following? Fish, beast meat, vegetables, fatty dishes, sugary dishes, salty dishes, spicy dishes or any other specified articles.

D. If the subject is prone to any of the following:

Eating hot dishes, hasty eating, irregular meal times, frequent participation in parties, much consuming soy sauce, much consuming "Miso" (soy bean paste) soup, any other specified unusual habit of alimentation.

8. Type of water supply

Service water, well, spring, river water or any other specified source.

9. Tobacco and beverages

A. Tobacco

a. Does the subject habitually smoke or not?

b. If a habitual smoker

i. The age of first acquiring and weaning of the habit. Or is the habit kept up to date?

ii. Does he smoke habitually cigarettes, cigars, pipe tobacco or Japanese fine-cut tobacco?

iii. Quantity of daily smoking, indicating the kind smoked.

iv. Specify any individual peculiarity in smoking, if any.

B. Alcoholic drinks

a. Does the subject like alcoholic liquors?

b. If yes

i. The main kind of liquor taken; "SAKE" (rice wine), beer, whiskey, "SHOCHU" (a kind of distilled alcoholic drink made from sweet potato or white potato), unrefined "SAKE" or other sort?

ii. Is the subject a heavy, medium or light drinker?

iii. Is the subject accustomed to drink before each supper?

C. Tea and coffee

a. Does the subject like to drink such beverages?

b. Is black tea, green tea, ground tea, coffee or any other specified beverage preferred?

c. Is the quantity of consumption of such beverages large, medium or small?

10. Anamnesis

A. Stomach Diseases

a. Experience or no of gastric ulcer.

b. Ditto of chronic gastritis.

c. Ditto of other gastric diseases. If yes, the name of disease.

d. Has the subject complained stomach upset for a long time?

B. Diseases associated with liver

a. Experience or no of liver cirrhosis, cholelithiasis, hepatitis, liver abscess, hepatatrophia, liver syphilis, cholecystitis and choledochitis, liver distomatosis or any other specified liver disease?

b. Ditto of parasitic diseases (by ascaris, hook-worm, tape-worm, Japanese hematozoon, thread-worm, filaria etc.)

c. Ditto of acute infectious diseases. If yes, the name of disease.

d. Ditto of malaria.

C. Lung Diseases

a. Experience or no of lung tuberculosis, silicosis, pneumonia, bronchiectasis, lung distomatosis, or any other specified lung disease.

D. Veneral Diseases

a. Experience or no of syphilis, gonorrhea, or any other specified venereal disease.

b. Ditto of antiluetic treatment.

E. Diseases of and Injury to the Breast (For female subjects only)

a. Experience or no of any disease of the breast. If yes, the name of the disease.

b. Ditto of external injury to the breast. If yes, the nature of injury.

F. Diseases of Female Genitals

a. Experience or no of diseases of uterus, ovaries and other female genital organs. If yes, the name of the disease.

b. Of curettage of endometrium

i. Experience or no.

ii. If yes, the number of experienced operations, the number of operations after natural miscarriages and the number of operations on other occasions.

G. Experience or no of any other important disease. If any, the name of the disease.

H. Hormone Therapy

a. Experience or no of receiving hormone therapy.

b. If yes, the reason, the age, the duration and the kind of hormone used.

11. Development of the Breast (For female subjects only)

A. Is the development of the breast (in normal time neither in pregnancy nor in lactation) good, medium or poor? Answer by sides.

B. Is the size of the right and the left breast equal or not? If not, which side is the larger?

12. Menstruation

A. Age of first menstruation.

B. Does the subject have menstruation at present? If not, the age of menopause.

C. Has been the menstrual cycle regular and normal or not? Has the subject either hyper- or oligomenorrhea?

D. Has the subject pain or tenseness in the breast related with her menstrual cycle?

13. Past Pregnancy, Delivery, Puerperium and Lactation

A. In each pregnancy experiences by the subject

a. The age of delivery.

b. Resulted the delivery in live birth, stillbirth, spontaneous abortion or artificial interruption of pregnancy?

c. Months of gestation at delivery.

d. If any anomaly occurred during pregnancy, delivery and puerperium, specify the name or symptoms of the anomaly.

e. The cause or reason if the pregnancy ended in stillbirth or artificial interruption.

B. In each live birth experienced by the subject

a. Did the child died during the first year after birth or not?

If so, the monthly age at its death.

b. Was the child fed with mother's milk, bottle milk or both of them?

c. The duration of lactation of the mother herself.

d. When the mother's milk was used for feeding, was the milk secretion satisfactory or not? Answer by sides of the breast.

e. Cause or reason in the case when mother's milk was not sufficient or when mother's milk was not used in feeding.

C. If the number of experienced pregnancy is abnormally few, state any cause if detected.

(II) Items Checked with the Stomach Cancer Patients

Items identical with those for control cases:

1, 2, 3, 4, 6, 7, 8, 9, 10A, 10Db, 10G.

Items appearing in this form but not in those for control cases:

14. Diagnosis

A. Clinical diagnosis

B. Metastasis or no.

C. Histological diagnosis

D. Method of diagnosis:

a. General clinical observation only

b. X-ray examination

c. Microscopic examination

d. Specify other methods if any.

15. If the subject is female, the number of past pregnancy, and the number of children born alive.

Items appearing in those for control cases but not in this form:

5, 10B, 10C, 10Da, 10E, 10F, 10H, 11, 12, 13.

(III) Items Checked with the Uterus Cancer Patients

Items identical with those for control cases:

1, 2, 3, 4, 5, 6, 10D, 10F, 10G, 10H, 12A, 12B, 12C, 13A, 13C.

Items appearing in this form but not in those for control cases:

14. Diagnosis

A. Clinical diagnosis

B. Metastasis or no.

C. Histological diagnosis

Items appearing in those for control cases but not in this form:

7, 8, 9, 10A, 10B, 10C, 10E, 11, 12D, 13B.

(IV) Items Checked with the Breast Cancer Patients

Items identical with those for control cases.

1, 2, 3, 4, 5, 6, 10D, 10E, 10F, 10G, 10H, 11, 12, 13Aa, 13Ab, 13Ac, 13B, 13C.

Items appearing in this form but not in those for control cases:

14. Diagnosis
    A. Clinical diagnosis (specify side developed)
    B. Metastasis or no.
    C. Histological diagnosis

Items appearing in those for control cases but not in this form:

7, 8, 9, 10A, 10B, 10C, 13Ad, 13Ae.

(V) Items Checked with the Lung Cancer Patients

Items identical with those for control cases:

1, 2, 3, 4, 6, 9, 10C, 10Db, 10G.

Items appearing in this form but not in those for control cases:

14. Diagnosis
    A. Clinical diagnosis (specify side and location developed)
    B. Metastasis or no.
    C. Histological diagnosis
    D. Method of diagnosis
        a. General clinical observation only.
        b. X-ray examination
        c. Microscopic examination
        d. Specify other methods, if any.
16. The names of places the subject has ever lived in since birth, the number of years of residence in each place, and the classification of each place in accordance with criteria, such as agricultural district, commercial, industrial, etc.
17. Method of heating experienced.
    A. Has the subject experience of using "IRORI" (the Japanese open wood fireplace) or not? If yes, for how many years?
    B. Ditto of coal stoves at home or not? If yes, for how many years?
18. Social Level of Livelihood: As graded into high, medium and low.

Items appearing in those for control cases but not in this form:

5, 7, 8, 10A, 10B, 10Da, 10E, 10F, 10H, 11, 12, 13.

(I) Cancer of the Stomach

2,475 recorded forms concerning stomach cancer cases have been received. The number of cases as classified by sex, age-group and urban and rural is shown in Table 6.

1) Kind of staple food

The staple food of the Japanese is rice. The latest national nutrition survey

reveals that the quantitative composition of food consumed daily per capita in Japan is as shown in Table 7. This table shows the average of the results of the investigations carried out in May, August and October, 1954 and February, 1955. The figures in this table represent the average quantities of food intake for people of all ages but not that for adults only. Of the whole daily consumption in weight, 1,052.0 g, rice accounts for 342.1g or 32.5%. The calories supplied by rice amounts to 56.1% of the total calories taken in, and the quantity of protein due to rice to 32.0% of the whole protein. In Japan, the consumption of barley and wheat is presumed to have increased since the termination of World War II, and accordingly the relative consumption of rice to have decreased. There are some who suppose a possible relation to exist between the abnormally high frequency of stomach cancer and the large consumption of rice as staple food in Japan. However, in consideration of the fact that stomach cancer is very common in Iceland and in Finland, where rice is not eaten so much, that in rice-eating Indonesia, stomach cancer is frequent only among the Chinese residents but not among the Indonesians themselves and that stomach cancer is not so prevalent among Indians who consume much rice, it is clear that rice consumption has no particularly decisive influence on the incidence of stomach cancer as a common factor throughout many races.

Table 6. Number of Cases of Stomach Cancer under Investigation by Sex, Age-group and Urban and Rural

Age	Male		Female	
	Urban	Rural	Urban	Rural
All ages	942	682	519	332
0～29 years	13	13	13	12
30～34	28	11	41	17
35～39	30	26	42	30
40～44	74	44	74	34
45～49	98	73	45	48
50～54	154	117	61	63
55～59	198	127	81	49
60～64	162	121	76	43
65～69	101	83	47	17
70～74	41	31	21	7
75～79	14	7	4	2
80 years and over	1	2	—	2
Age unknown	28	27	14	8

But anyhow, we have to investigate what a difference, if any, is to be found in the frequency of the occurrence of stomach cancer between those who consume rice as staple food and those not. However, this type of cohort follow up study is one of the most difficult and time-consuming investigation to perform. Therefore, we made an approach to the solution of this problem applying the cross section analysis, namely, we observed the difference, if any, between the ratio of those who had taken only rice as the staple food to those who had eaten other grains, for example, barley, wheat or whatnot, alone or together with rice, as the

Table 7. Average Quantity of Calories and Nutrients In-take
by Food-group per Head per Day in 1954
(From data of National Nutrition Survey published by Welfare Ministry)

	All Japan	Urban	Rural	All Japan							
	Total quantity			Calorie		Protein		Fat		Carbohydrate	
	g			Cal.	%	g	%	g	%	g	%
Total	1,052.0	1,042.5	1,059.5	2,074.1	100.0	69.3	100.0	21.2	100.0	403.2	100.0
Rice	342.1	320.5	358.3	1,163.1	56.1	22.2	32.0	3.1	14.6	261.6	64.9
Barley	55.6	42.4	65.5	189.8	9.1	5.2	7.5	0.7	3.3	40.7	10.1
Wheat	73.2	93.6	57.9	196.0	9.4	5.3	7.6	1.1	5.2	41.4	10.3
Other grains	3.7	3.9	3.6	9.3	0.4	0.3	0.4	0.1	0.5	1.9	0.5
Nuts	0.5	0.5	0.5	2.5	0.2	0.1	0.1	0.2	0.9	0.1	0.0
Sweet potato	35.2	18.7	47.5	42.0	2.0	0.5	0.7	0.1	0.5	9.9	2.5
White potato	28.6	30.3	27.4	21.3	1.0	0.5	0.7	0.1	0.5	4.7	1.2
Other potatoes	13.2	11.1	14.7	11.5	0.6	0.3	0.4	0.0	0.0	2.5	0.6
Sugars	15.6	17.2	14.4	58.0	2.8	0.2	0.3	0.1	0.5	14.1	3.5
Oils and fats	4.6	5.9	3.6	39.7	1.9	0.0	0.0	4.4	20.7	0.0	0.0
Soybeans	2.4	1.8	2.9	9.7	0.5	0.8	1.2	0.4	1.9	0.7	0.2
Soybean-paste	30.2	25.5	33.7	48.1	2.3	3.6	5.2	1.0	4.7	6.3	1.6
Soybean products	29.1	37.2	23.0	40.5	2.0	2.6	3.8	2.5	11.8	1.8	0.4
Other pulses	6.5	6.8	6.4	20.5	1.0	1.3	1.9	0.4	1.9	3.1	0.8
Fishes and shellfishes fresh	68.0	75.0	62.6	83.0	4.0	12.5	18.0	3.2	15.1	1.1	0.3
Fishes and shellfishes dried	9.7	8.4	10.8	27.2	1.3	5.4	7.8	0.6	2.8	0.2	0.0
Meats, poultry and whales	10.8	16.6	6.5	16.3	0.8	2.3	3.3	0.8	3.8	0.0	0.0
Eggs	11.3	14.9	8.7	17.2	0.8	1.5	2.4	1.3	6.1	0.0	0.0
Milk	12.5	16.3	9.7	7.5	0.4	0.4	0.6	0.4	1.9	0.6	0.1
Milk products	0.6	1.0	0.2	1.6	0.1	0.1	0.1	0.1	0.5	0.2	0.0
Green and yellow vegetables	59.6	56.5	62.1	19.5	0.9	1.4	2.0	0.2	0.9	3.1	0.8
Citrus	18.1	27.5	11.1	5.8	0.3	0.2	0.3	0.1	0.5	1.2	0.3
Other fruits	19.3	21.5	17.7	8.4	0.4	0.1	0.1	0.1	0.5	1.9	0.5
Other vegetables	106.8	98.2	113.3	20.3	1.0	1.5	2.2	0.1	0.5	3.4	0.8
Seaweeds	4.8	4.8	4.7	—	—	—	—	—	—	—	—
Dried vegetables	1.7	0.8	2.4	2.9	0.1	0.2	0.3	0.0	0.0	0.6	0.1
Pickled vegetables	47.8	45.7	49.4	12.4	0.6	0.8	1.1	0.1	0.5	2.1	0.5
Soy-sauce	28.9	26.8	30.5	—	—	—	—	—	—	—	—
Other condiments	11.6	13.1	10.4	—	—	—	—	—	—	—	—

staple food among the stomach cancer cases and that among the control cases. As shown in Table 9, we found that the exclusive rice consumers was very significantly higher among the cancer cases. Whether this difference indicates the actual situation or is due to some external reasons involved in the course of producing the statistical data is not easy to answer. We simply would like to mention here the result of our analysis of data with no conclusive comment. If in the future similar investigations are repeated and similar results are arrived at, we will be led to believe in the truth of the rice eating habit as a factor of causing stomach cancer.

2) Quantity of diet

Is there any relation between the quantity of diet and the incidence of the

Table 8. Average Quantity of Nutrients In-take, per Head per Day in 1954
(Source: The same as Table. 7)

	All Japan	Urban	Rural
Exchange rate for adult			
for protein	0.895	0.887	0.902
for calorie	0.853	0.841	0.862
Protein			
Total (g)	68.9	69.0	68.8
Animal protein (g)	22.1	24.4	20.3
Vegetable protein (g)	46.8	44.6	48.5
Fat (g)	20.9	23.6	18.9
Carbohydrate (g)	402.8	380.6	419.5
Calorie (Cal.)	2,073.8	2,010.4	2,121.5
Inorganic substances			
Calcium (mg)	362	343	377
Phosphorus (mg)	1,818	1,775	1,851
Iron (mg)	60	58	62
Vitamin			
A (I. U.)	2,814	3,047	2,640
B_1 (mg)	1.12	1.08	1.15
B_2 (mg)	0.66	0.65	0.66
C (mg)	75	74	76

Table 9. Number and Percentage of Cases Consuming Rice only as Staple Food among Stomach Cancer Cases and Controls (co.), both of Age 30 Years and over

			Total number	Cases consuming rice only		Significance of difference
				Number	%	
Male	Urban	Patients	818	630	77.0	***
		Controls	1,174	539	45.9	
	Rural	Patients	559	361	64.6	***
		Controls	1,612	649	40.3	
Female	Urban	Patients	428	309	72.2	***
		Controls	900	406	45.1	
	Rural	Patients	267	174	65.2	***
		Controls	1,157	456	39.4	

*** Denotes significance at the 0.1% level.

stomach cancer? In Japan, it is generally believed that the stronger the tendency of a person of depending his diet upon rice or other cereals for his nutrition, the larger the quantity of diet he takes. In the rural districts, consumption of

protein-rich food articles is low. Those who take in relatively large quantity of cereals and vegetables have to rely for their protein supply on the meagre protein content of cereals, and consequently, they have to eat a large quantity of food. Moreover, agricultural workers require large calories, and since they are obliged to depend mainly upon rice and other cereals for their calorie source in actual life, they have to consume a large quantity of food. In some regions of Japan, when the laborers are engaged in farm works, they sometimes consume more than 1,000 g of rice per meal. The city dwellers who take relatively more protein, especially animal protein, and fat-rich food stuffs are believed to consume smaller quantity of food.

In this investigation, we have aimed at informations on the relation between the quantity of food and the stomach cancer, but the quantity was not actually weighted but was figured out based on the statement of the subjects. As shown in Table 10, the rate of cases that are "conscious of gluttony" was significantly higher among the cancer cases than among the controls, both in male and female and both in urban and rural districts. In particular, the difference was significant at the level of 0.1% among the male rural residents.

In the next, a similar investigation was carried out with those "conscious of meagre meals", and we found that the rate was significantly smaller among the male cancer cases. Among the female cases, the difference was not significant in the rural district, but in urban areas, the rate of little-eating women was higher among

Table 10. Number and Percentage of Cases who are Conscious of Gluttons and Meagre Meals among Stomach Cancer Cases and Control Cases (co.), both of Age 30 Years and over

			Total number	Conscious of gluttons			Conscious of meagre meals		
				Number	%	Significance of difference	Number	%	Significance of difference
Male	Urban	Patients	778	158	20.3	**	132	17.0	*
		Controls	1,132	167	14.8		234	20.7	
	Rural	Patients	531	123	23.2	***	72	13.6	**
		Controls	1,593	204	12.8		318	20.0	
Female	Urban	Patients	423	54	12.8	*	123	29.1	***
		Controls	889	79	8.9		185	20.8	
	Rural	Patients	261	34	13.0	**	47	18.0	(—)
		Controls	1,141	90	7.9		240	21.0	

* Denotes significance at the 5% level.
** Denotes significance at the 1% level.
*** Denotes significance at the 0.1% level.

the stomach cancer cases than that among the controls. This seems to contradict the above mentioned inference that the gluttons are likely to be more numerous among the cancer cases. We can not explain what factors reflected on such apparently conflicting data we obtained, but, anyhow, we state the bare results of our analysis without comment.

3) Likes and dislike in food

We made investigation whether the subject liked to eat fish meat, beast meat, vegetables, sugary, salty or spicy viands etc. or disliked any one of them, but owing to our failure in giving adequate instructions for filling the forms up, we could not obtain reliable results. Generally speaking, fuller details were given in the forms for the control cases, but the forms for the cancer cases contained often rather cursory remarks only. Moreover, in our investigation, the question was limited to whether the subject showed special likes or dislikes to any kind of food and did not enter upon the question of how much or little he actually ate such articles of food. We have to pay attention to the fact that the question of preference or repugnance of any victuals is a separate one from that whether he actually consumes much or little of it.

4) Dietary habit

In some districts in Japan, the notion is prevalent that eating of hot dishes is related with the incidence of stomach cancer. Thus, we investigated whether the subject was in the habit of eating hot food, based on the subject's own statement. As shown in Table 11, among the rural male population, the rate of hot-food eaters was significantly lower among the cancer cases, but among the urban dwellers, both male and female, and among the rural female population, no such a significant difference was perceptible. So far as the result of our investigation is concerned, it did not lead us to the conclusion that the habit of eating hot-food becomes a cause of stomach cancer.

Hasty eating without adequate mastication was our next subject of inquiry. As shown in Table 11, the rate of hasty eaters was larger among the cancer cases of all the groups, and particularly, among the male urban dwellers, the difference was significant.

The relation between the irregularity of meal times and stomach cancer was also studied. As shown in Table 11, among the male population, both in urban and rural, the rate of those with the habit of irregular meal time was higher among the stomach cancer cases than among the controls with the significant difference at the level of 0.1%. Among the female population, even though the difference was not so outstanding compared with among the male population, it was still significant at the level of 5%.

The Japanese use a kind of liquid condiment brewed from soy beans called

"SHOYU" or soy sauce. This sauce is a peculiar condiment rarely seen outside Japan. We investigated how those who use especially large quantity of this sauce were distributed and found that the rate of such large quantity "SHOYU" consumers was smaller among the cancer cases compared with that among the controls in all groups of comparison, as shown in Table 11.

In Japan, the habit of drinking at breakfast a kind of soup prepared with a paste, manufactured by fermenting soy beans, called "MISO", is very popular. The rate of heavy consumers of this "MISO"-soup was significantly lower among the cancer cases than among the controls, as shown in Table 11.

Thus, these two products from soy beans, "SHOYU" and "MISO", which

Table 11. Number and Percentage of Cases who have Specific Dietary Habits among Stomach Cancer Cases and Control Cases (co.), both of Age 30 Years and over

		Male				Female			
		Urban		Rural		Urban		Rural	
		Patients	Controls	Patients	Controls	Patients	Controls	Patients	Controls
Total number		784	1,133	523	1,648	412	845	256	1,162
Eating of hot food	Number	197	297	117	468	96	225	60	341
	%	25.1	26.2	22.2	28.4	23.3	26.6	23.4	29.3
	Significance of difference	(−)		**		(−)		(−)	
Hasty eating	Number	242	299	181	520	71	131	55	197
	%	30.9	26.4	34.3	31.6	17.2	15.5	21.5	17.0
	Significance of difference	*		(−)		(−)		(−)	
Irregular meal time	Number	199	182	98	193	78	114	46	150
	%	25.4	16.1	18.6	11.7	18.9	13.5	18.0	12.9
	Significance of difference	***		***		*		*	
Using large quantity of "SHOYU"	Number	74	132	45	229	37	115	20	229
	%	9.4	11.7	8.5	13.9	9.0	13.6	7.8	19.7
	Significance of difference	(−)		**		*		***	
Drinking large quantity of "MISO-SOUP"	Number	142	326	107	610	35	140	37	311
	%	18.1	28.8	20.3	37.0	8.5	16.6	14.5	26.8
	Significance of difference	***		***		***		***	
Having much opportunities to participate in parties	Number	129	92	75	165				
	%	16.5	8.1	14.2	10.0				
	Significance of difference	***		**					

* Denotes significance at the 5% level.
** Denotes significance at the 1% level.
*** Denotes significance at the 0.1% level.

are believed to be rather peculiar to Japanese diets, may be well excluded from the main causes of stomach cancer.

In Japan, parties featuring eating and drinking of alcoholic liquors are rather frequent. This may not be limited to Japan at all. In Japan, the alcoholic drink served at such parties is chiefly "SAKE", made from rice, but recently beer has come in vogue, especially in the urban areas. Upon investigation, we found that the rate of men who have much opportunities to participate in such parties (in Japan, women have little opportunity to go to such parties) was significantly higher among the stomach cancer cases than among the controls, both in urban and rural districts.

5) Taste for alcoholic drinks

The results of the comparison of the rate of those who like and actually drink alcoholic drinks among the male cancer cases and the male controls of 30 years of age and over, as shown in Table 12, shows that the rate was rather smaller among the cancer cases, the difference being significant in the rural districts. In this table, the number of those who have given up the former habit of drinking was included in that of the present bibbers.

Table 12. Number and Percentage of Cases that Like and Actually Drink Alcoholic Liquors among Stomach Cancer Cases and Control Cases (co.), both for Male of Age 30 Years and over

		Total number	Like and drink		Significance of difference
			Number	%	
Urban	Patients	854	580	67.9	(—)
	Controls	1,159	827	71.4	
Rural	Patients	586	392	66.9	*
	Controls	1,575	1,144	72.6	

Note: Cases that like and drink, including those who used to like and have given up drinking.

* Denotes significance at the 5% level.

In Japan, the drinkers mostly prefer a kind of wine brewed from rice, called "SAKE" in Japanese, containing 15-16% in volume of alcohol. Beer drinking has become also rather prevalent here. The alcohol content of beer, brewed in Japan, is not different from that of European beer, standing at about 8%. A distilled liquor called "SHOCHU", made from sweet potato, white potato, etc., is also consumed. This contains 20-30% of alcohol. Some prefer whisky or grape-wine, but habitual drinkers of these items are few in Japan. At dinner parties, rice wine, "SAKE", is the main drink, but often enough beer is also served. The results of investigations on the kinds of alcoholic drinks consumed

by the cancer cases and the controls are given in Table 13. It is hard to draw any significant result out from the observation of this table.

Table 13. Number of Drinkers among Stomach Cancer Cases and Control Cases Classified by the Kind of Alcoholic Drinks, both for Male of Age 30 Years and over

	Patients		Controls	
	Urban	Rural	Urban	Rural
Total	505	349	1,077	1,526
"SAKE"	323	251	589	909
Beer	11	2	69	62
Whisky	2	1	5	8
"SHOCHU"	24	15	66	123
"SAKE" and others	138	72	327	388
Others	7	8	21	36

In the next, the relation between the quantity of alcoholic drinks taken in and stomach cancer was investigated. The cancer cases and the control cases were questioned for their capacity of taking in alcoholic drinks. The subjects were taken at their statement without actual testing of their performances. As shown in Table 14, the results of the investigation showed that heavy drinkers were more frequent among the cancer cases, both in urban and rural, with a significant difference at the level of 0.1 %. The rate of those claiming to be moderate

Table 14. Number and Percentage of Drinkers among Stomach Cancer Cases and Control Cases (co.), both for Male of Age 30 Years and over, Graded by Individual Capacity

		Urban		Rural	
		Patients	Controls	Patients	Controls
Total number		553	759	372	1,108
Heavy drinkers	Number	162	124	97	200
	%	29.3	16.3	26.1	18.1
	Significance of difference	***		***	
Moderate drinkers	Number	235	301	149	479
	%	42.5	39.7	40.1	43.2
	Significance of difference	(—)		(—)	
Poor drinkers	Number	156	334	126	429
	%	28.2	44.0	33.9	38.7
	Significance of difference	***		(—)	

*** Denotes significance at the 0.1% level.

drinkers showed no significant difference. The rate of poor drinkers among the urban cancer cases was remarkably smaller than among the controls but, in rural districts, no significant difference was noted. For assuring the truth of these results of statistical investigations, similar investigations should be repeated in the future, but, as far as the present study is concerned, though we cannot say that the rate of those who like and drink some liquor is higher among the cancer cases, we may point out that the heavy drinkers among the habitual bibbers were found in a higher rate among the stomach cancer cases than among the controls.

Among the Japanese, some are accustomed to take some "SAKE", rice wine, before supper every evening. The dosis of this aperitif is not uniform, but mostly, it ranges between 200 cc and 500 cc. This habit shows that the subject is really fond of "SAKE". The rate of such constant drinkers among the cancer cases, as shown in Table 15, was significantly higher than that among the controls.

Table 15. Number and Percentage of Cases that Habitually Drink "SAKE" before Supper among Stomach Cancer Cases and Control Cases (co.) both for Male

		Total number	Habitually drink "SAKE"		Significance of difference
			Number	%	
Urban	Patients	459	298	64.9	***
	Controls	706	357	50.6	
Rural	Patients	314	177	56.4	**
	Controls	874	416	47.6	

** Denotes significance at the 1% level.
*** Denotes significance at the 0.1% level.

6) Kind of water supply

The results of investigation of the sources of drinking water were as shown in Table 16. In the urban male population, the rate of cases drinking service water was significantly higher and the rate of cases relying upon wells for water supply was significantly lower among the cancer cases than among the control cases, while in the rural male population, there was no such differnce in the rate of service water drinkers and that of well water drinkers, but the rate of spring- or river-water drinkers was lower among the cancer cases than among the controls. Among the female population, the same difference as that between male users of service water and of well water was observed, both in urban and rural districts, but as to the cases relying on spring or rivers for water supply, there was no such a difference as perceived among the male cases.

Table 16. Number and Percentage of Stomach Cancer Cases and Control Cases (co.) Classified by Sources of Water Supply

			Total number	Service water			Well water			Spring or river-water		
				Number	%	Significance of difference	Number	%	Significance of difference	Number	%	Significance of difference
Male	Urban	Patients	792	593	74.9	* * *	229	28.9	* * *	10	1.26	(−)
		Controls	1,141	746	65.4		436	38.2		26	2.28	
	Rural	Patients	528	74	14.0	(−)	435	82.4	(−)	36	6.82	* *
		Controls	1,548	234	15.1		1,197	76.9		171	11.05	
Female	Urban	Patients	425	312	73.4	* * *	124	29.2	* * *	4	0.94	(−)
		Controls	892	572	64.1		359	40.2		16	1.79	
	Rural	Patients	258	39	15.1	(−)	201	77.9	(−)	24	9.30	(−)
		Controls	1,207	204	16.9		919	76.1		119	9.86	

* * Denotes significance at the 1% level.
* * * Denotes significance at the 0.1% level.

7) Smoking habit

The kinds of tobacco manufactures smoked by the male cancer and control cases of 30 years of age and over were as listed in Table 17, mainly consisting in cigarettes. Habitual smokers of cigars and Western-style pipe tobacco are very small in number in Japan. There is a variety of fine cut tobacco called "KIZAMI" in Japan, which is smoked through a long slender pipe with a bamboo tube between metal bowl and mouthpiece. This traditional mode of smoking is on the wane and is becoming obsolete except among the older generation especially in the rural districts.

Table 17. Number of Male Smokers among Stomach Cancer Cases and Control Cases Classified by Kind of Tobacco Products Smoked

	Patients		Controls	
	Urban	Rural	Urban	Rural
Total	695	448	1,219	1,676
Cigarette	571	309	1,112	1,295
Cigar	2	1	13	10
Pipe tobacco	—	—	1	4
"KIZAMI"	22	38	93	367

The rate of habitual tobacco smokers was found, as shown in Table 18, to be higher with the significant difference among the cancer cases than among the controls in urban districts, whereas the difference was too small to be significant in the rural districts. The varieties of the smoked tobacco products are not given in this table, but the majority are cigarettes.

Next, we made a comparison of the quantity of tobacco smoked daily per capita by the male cancer cases and by the male control cases and found that the quantity was significantly higher among the cancer cases in the urban districts,

Table 18. Number and Percentage of Habitual Smokers among Male Stomach Cancer Cases and Control Cases (co.), both of Age 30 Years and over

		Total number	Habitual smoker		Significance of difference
			Number	%	
Urban	Patients	850	754	88.7	*
	Controls	1,110	940	84.7	
Rural	Patients	587	479	81.6	(—)
	Controls	1,644	1,318	80.2	

Note: Habitual smokers including those who used to smoke but have given up smoking.

* Denotes significance at the 5% level.

as shown in Table 19, where the quantity is given in the number of cigarettes. The quantity of "KIZAMI" was given in equivalent number of cigarettes. The result reveals the parallel tendency with the finding seen in the previous table, namely, the average quantity of tobacco smoked is larger for the cancer cases than for the controls, both in urban and rural, but with significant difference in urban districts only. In spite of the results we obtained, taking into consideration the fact that the stomach cancer is considerably prevalent among the females too in Japan, whose proportion of tobacco smokers is relatively small, it seems to be too hasty to believe the existence of any close relation between smoking habit and the occurrence of stomach cancer.

Table 19. Average Quantity of Tobacco Consumed Daily per Head by Male Habitual Smokers among Stomach Cancer Cases and Control Cases (co.), in Numbers of Cigarettes

		Number of smoker	Average quantity (in numbers of cigarettes)	Estimated variance	Significance of difference
Urban	Patients	681	15.70	100.346	* *
	Controls	797	14.18	75.259	
Rural	Patients	438	14.11	83.955	(—)
	Controls	1,115	13.48	68.609	

** Denotes significance at the 1% level.

8) Anamnesis of stomach ulcer

We made another investigation aimed at studying whether there are more cases with previous experience of stomach ulcer among the stomach cancer cases. The results, as shown in Table 20, revealed that the rate of such cases was significantly higher among the cancer cases at the level of 0.1%. Observing the

data classified into age-groups too, a similar difference was perceptible in all the decennial group, except in the groups with small number of cases as in the group of 70 years of age and over.

Table 20. Number and Percentage of Cases with Anamnesis of Stomach Ulcer among Stomach Cancer Cases and Control Cases (co.) of 30-79 Years in Age

			Total number	Cases with anamnesis		Significance of difference
				Number	%	
Male	Urban	Patients	424	32	7.5	***
		Controls	877	16	1.8	
	Rural	Patients	256	27	10.5	***
		Controls	1,352	27	2.0	
Female	Urban	Patients	800	114	14.3	***
		Controls	1,222	72	5.9	
	Rural	Patients	552	68	12.3	***
		Controls	1,736	98	5.6	

*** Denotes significance at the 0.1% level.

9) Anamnesis of chronic gastritis

A similar investigation was carried out of the cases with chronic gastritis in their anamnesis. As shown in Table 21, the rate of such cases was found markedly higher among the cancer cases with the significant difference at the level of 0.1%.

Table 21. Number and Percentage of Cases with Anamnesis of Chronic Gastritis among Stomach Cancer Cases and Control Cases (co.) of 30-79 Years in Age

			Total number	Cases with anamnesis		Significance of difference
				Number	%	
Male	Urban	Patients	410	70	17.1	***
		Controls	888	51	5.7	
	Rural	Patients	255	45	17.6	***
		Controls	1,373	104	7.6	
Female	Urban	Patients	670	127	19.0	***
		Controls	1,036	127	12.3	
	Rural	Patients	539	100	18.6	***
		Controls	1,704	207	12.1	

*** Denotes significance at the 0.1% level.

10) Complaint of habitual "stomach upset"

In Japan, the expression "weak in the stomach" is in common use, usually based on a subjective feeling on the condition of stomach upset when the condition is rather ambiguous as viewed medically or in the scope of application. There is many a case with some dysfunction in the stomach of which the subject is dimly conscious, when he complains of weak stomach. As shown in Table 22, there was found a larger rate of those who claim to have been weak in the stomach habitually among the cancer cases, both in urban and rural and both male and female.

Table 22. Number and Percentage of Cases with Habitual "Stomach Upset" among Stomach Cancer Cases and Control Cases (co.) of 30-79 Years in Age

			Total number	Cases with habitual "Stomach upset"		Significance of difference
				Number	%	
Male	Urban	Patients	429	128	29.8	* *
		Controls	892	202	22.6	
	Rural	Patients	267	85	31.8	* *
		Controls	1,452	348	24.0	
Female	Urban	Patients	802	263	32.8	*
		Controls	1,218	341	28.1	
	Rural	Patients	545	179	32.8	* * *
		Controls	1,697	431	25.4	

* Denotes significance at the 5% level.
** Denotes significance at the 1% level.
*** Denotes significance at the 0.1% level.

11) Number of children

We made some investigations on the problem whether the average number of children born alive from ever-married female cancer cases is different from that born from ever-married general female population as reported in the national census. For such an investigation, we thought it was proper to use data including still-births, but since suitable data for the general female population were not available, we had to rely on statistics giving the number of live-birth only. This comparison was made with cases of 50 years of age and over as subjects. The results, as shown in Table 23, showed that the average number of children per cancer case was 4.12 in urban and 5.18 in rural districts, while the average number appearing in the census stood at 4.20 in urban and 4.94 in rural districts. The result of t-test revealed that the difference was not significant in either districts.

Table 23. Frequency Distribution and Average of Number of Children Born from Ever-married Women of 50 Years and over with Stomach Cancer in Comparison with the Corresponding Average Number for Ever-married General Female Population of 50 Years and over, as Given in National Census

Number of children	Urban	Rural	Number of children	Urban	Rural
0	18	5	12	1	1
1	6	5	Total	117	56
2	11	4	Average number of children	4.12	5.18
3	19	6	Estimated variance	8.07	9.82
4	12	2	Average number of children, as given in National Census	4.20	4.94
5	9	3			
6	16	8			
7	13	9			
8	5	5			
9	6	7			
10	—	1	Significance of difference	(−)	(−)
11	1	—			

12) Blood type

The percentages by blood type of the cancer cases, as classified by ABO system, are tabulated in Table 24 in comparison with those of the general population in Japan. The figures for the general population used were those published by Kobayashi. The results show that the frequency of A-type is significantly larger and that of AB-type is significantly smaller among the stomach cancer cases than among the general Japanese population.

Table 24. Distribution of ABO Blood Types among Stomach Cancer Cases and the Japanese in General

		Total number	A	B	O	AB
Patients	Number	1,385	571	296	412	106
	%	100.0	41.2	21.4	29.7	7.7
Japanese† in general	Number	530,046	203,255	115,416	161,461	49,914
	%	100.0	38.3	21.8	30.5	9.4
Significance of difference			*	(−)	(−)	*

* Denotes significance at the 5% level.

† Distribution of blood type among the Japanese in general was obtained based on the Report by Kobayashi in the Japanese Journal of Criminology, 14 : 729–735, 1940.

(II) Cancer of the Breast

The number of the breast cancer cases coming under the survey was 644, exclusive of 3 male cases. The number as classified by urban and rural districts and age-group is shown in Table 25.

Table 25. Number of Cases of Breast Cancer under Investigation by Age-group and Urban and Rural

Age	Urban	Rural
All ages	432	212
0～29 years	20	5
30～34	26	12
35～39	59	32
40～44	73	37
45～49	83	42
50～54	58	33
55～59	41	18
60～64	27	18
65～69	13	5
70～74	9	4
75～79	3	—
80 years and over	1	—
Age unknown	19	6

1) Side of cancer development

Of 615 cases of breast cancer, the sides of development of cancer were parted as shown in Table 26. Of the 579 cases with cancer on one of the sides only, 314 had the left side cancer, accounting for 54.2% of the total. The result is interpreted into the evidence that the ratio of the number on the left to that on the right is 118 to 100. When tested by the table of F-distribution, we can say that the left-side breast cancer is more frequent than the right-side with a significant difference at the level of 5%.

Table 26. Distribution of the Side-specific Breast Cancer Cases

	Total	Right side	Left side	Both sides	Unknown
Number	615	265	314	24	12
%	100.0	43.1	51.1	3.9	2.0

2) Marital status

The number of the breast cancer cases, as tabulated by marital status, age-group and urban and rural, is as shown in Table 27. Women who have been divorced or have been widowed before and are now remarried are included under the heading of "married".

Table 27. Number of Breast Cancer Cases Classified by Marital Status

Age	Urban				Rural			
	Total	Unmarried	Married	Widowed or divorced	Total	Unmarried	Married	Widowed or divorced
30 to 39 years	81	5	64	12	43	2	38	3
40 to 49 years	148	4	128	16	78	5	61	12
50 to 59 years	97	2	71	24	51	1	38	12
60 years and over	52	1	25	26	27	1	13	13

In Table 28, the percentages of married and unmarried women to the total breast cancer cases are shown in comparison with the corresponding percentages for the total female population of Japan as reported in the population census of 1950. The data of our investigation as well as of census include the women married in fact but not legally under the heading of "married". The significance test for the difference of the respective percentages between for cancer cases and for general female population was carried out using the table of F-distribution. In all the age-groups, the percentage of single women seems to be larger among the breast cancer cases, but the number of cases was too small for proving the significance of difference, except in the age-group of 40-49 in rural districts. Therefore, under the present situation of our study, we can not give any definite conclusion on the relation between the marital status and the occurrence of breast cancer. We are expecting that further studies may lead us to the solution of this problem.

Table 28. Comparison of Percentages of Cases Classified by Marital Status among Women with Breast Cancer with that of Female Population in General as Given in National Census in 1950

			Total	Unmarried	Married	Widowed or divorced
Urban	30 to 39 years	Patients	100	6.2	79.0	14.8
		Census	100	5.6	82.0	12.5
	40 to 49 years	Patients	100	2.7	86.5	10.8
		Census	100	2.3	78.2*	19.5**
	50 to 59 years	Patients	100	2.1	73.2	24.7
		Census	100	1.4	62.9*	35.6*
	60 years and over	Patients	100	1.9	48.1	50.0
		Census	100	1.9	29.3**	68.8**
Rural	30 to 39 years	Patients	100	4.7	88.4	7.0
		Census	100	3.6	83.7	12.7
	40 to 49 years	Patients	100	6.4*	78.2	15.4
		Census	100	1.5**	81.9	16.6
	50 to 59 years	Patients	100	2.0	74.5	23.5
		Census	100	1.2	70.1	28.7
	60 years and over	Patients	100	3.7	48.1	48.1
		Census	100	1.6	36.7	61.7

* Denotes significance at the 5% level.
** Denotes significance at the 1% level.
*** Denotes significance at the 0.1% level.

3) Age of first marriage

The frequency distribution of the age of first marriage of 551 breast cancer cases and 1,921 controls was tabulated and the average ages were computed by urban

Table 29. Frequency Distribution and Average of Age of First Marriage among Breast Cancer Cases and Control Cases

Age of first marriage	Urban		Rural	
	Patients	Controls	Patients	Controls
13 years	—	—	—	1
14	—	3	1	4
15	1	8	1	22
16	5	15	3	61
17	19	56	12	114
18	24	82	10	124
19	45	126	29	151
20	39	91	27	144
21	34	97	17	141
22	56	114	24	91
23	38	60	16	92
24	28	47	18	62
25	23	31	10	31
26	24	29	5	23
27	6	10	7	15
28	7	13	1	16
29	2	6	1	3
30	2	5	1	—
31	2	1	—	5
32	5	5	—	5
33	—	—	1	2
34	—	1	—	2
35	1	—	—	2
36	—	—	—	2
37	1	—	1	3
38	—	—	—	2
39	—	—	—	1
40	1	1	—	—
41	1	—	—	—
43	—	—	—	1
46	1	—	1	—
Total	365	801	186	1,120
Average age	22.12 years	21.04 years	21.55 years	20.57 years
Estimated variance	14.74	10.07	13.70	12.60
Significance of difference	Significant at the 1.0% level		Significant at the 1.0% level	

and rural districts. As shown in Table 29, in urban districts, the age of first marriage averaged 22.12 among the cancer cases and 21.04 among the controls, while in rural districts, the average was 21.55 among the cancer cases and 20.57 among the controls. The significance test for the difference between the average ages

Table 30. Frequency Distribution and Average of Age of First Delivery among Breast Cancer Cases and Control Cases

Age of first delivery	Urban		Rural	
	Patients	Controls	Patients	Controls
14 years	—	—	—	1
15	—	—	1	2
16	—	3	—	7
17	3	15	5	28
18	14	34	4	66
19	18	62	13	103
20	28	80	16	126
21	24	67	18	138
22	26	95	15	136
23	32	95	18	105
24	35	68	14	85
25	21	44	12	61
26	12	36	6	39
27	20	42	9	26
28	8	16	8	25
29	9	18	3	15
30	7	12	2	9
31	3	4	—	5
32	8	2	1	6
33	1	6	2	7
34	1	2	—	2
35	3	5	1	2
36	1	2	—	2
37	—	—	1	2
38	1	—	2	2
39	1	1	—	1
40	—	1	—	1
41	1	—	1	1
42	1	—	1	—
45	1	—	—	—
Total	279	710	153	1,003
Average age	23.98 years	22.94 years	23.50 years	22.28 years
Estimated variance	20.07	13.19	21.06	12.92
Significance of difference	Significant at the 1.0% level		Significant at the 1.0% level	

of first marriage of both cancer cases group and controls group was carried out applying Welch's method, the result of which revealed that the average age was significantly higher among the cancer cases. From this, we can say that the cases with breast cancer are later in marrying.

4) Age of first delivery

The frequency distribution and the average of the age of first delivery were obtained with 432 breast cancer cases and 1,713 control cases both who had had the experience of delivery and the difference of the average age between both groups was tested by Welch's method, as shown in Table 30. In the urban districts, the average age of first delivery was 23.98 among the cancer cases and 22.94 among the controls, while in rural districts, the values stood at 23.50 and 22.28 respectively, the difference between the average ages of the cancer cases and the controls being significant at the level of 1% in both the districts. Thus, a tendency is observed of the age of first delivery being higher among the cancer cases in urban as well as rural districts.

5) Number of children

The number of children born alive from the ever-married women with breast cancer was studied in comparison with that of children of the ever-married women among the general population, as given in the data of the population census of 1950, and classified by urban and rural and age-group of mother. The

Table 31. Frequency Distribution and Average of Number of Children Born from Ever-married Breast Cancer Cases

Number of children	Urban				Rural			
	30 to 39 years	40 to 49 years	50 to 59 years	60 years and over	30 to 39 years	40 to 49 years	50 to 59 years	60 years and over
0	19	39	31	11	7	17	14	7
1	12	17	7	9	5	8	6	5
2	15	18	11	10	8	8	1	3
3	14	20	15	4	6	12	5	—
4	11	18	7	4	8	3	7	—
5	4	17	7	7	5	8	4	3
6	—	10	8	2	1	5	3	5
7	1	5	4	3	1	5	4	2
8	—	1	1	1	—	4	1	—
9	—	—	1	—	—	2	2	1
10	—	—	3	—	—	1	2	—
11	—	—	—	—	—	—	1	—
Total	76	145	95	51	41	73	50	26
Average number	2.04	2.57	2.74	2.62	2.66	3.21	3.48	3.04
Estimated variance	2.76	4.80	7.34	5.20	3.48	7.69	10.67	8.44

number of children does not include that of children born dead. Table 31 gives the frequency distribution of the number of children born from the breast cancer cases and the average number computed with this distribution as basis. In Table 32, the results of the significance test on the difference between the average number of children born from the breast cancer cases and that from the general women are shown, being tested by means of t-test. We find that the number of children born from the breast cancer cases is significantly lower both in urban and rural districts and in all the age-groups.

Table 32. Comparison of Average Number of Children Born from Ever-married Breast Cancer Cases with that from Ever-married Women in General, as Appearing in National Census in 1950

	Urban				Rural			
	30 to 39 years	40 to 49 years	50 to 59 years	60 years and over	30 to 39 years	40 to 49 years	50 to 59 years	60 years and over
Patients	2.04	2.57	2.74	2.62	2.66	3.21	3.48	3.04
Census	2.90	3.96	4.13	4.28	3.48	5.04	5.14	4.77
Significance of difference	***	***	***	***	**	***	***	**

** Denotes significance at the 1.0% level.
*** Denotes significance at the 0.1% level.

Table 33. Frequency Distribution and Average of Age of First Menstruation among Breast Cancer Cases and Control Cases

Age of first menstruation	Ubran		Rural	
	Patients	Controls	Patients	Controls
11 years	2	3	—	2
12	19	22	7	24
13	69	104	31	124
14	94	189	56	221
15	101	223	40	315
16	56	146	35	255
17	30	89	13	109
18	18	42	9	58
19	1	10	—	12
20	—	3	2	2
21	—	1	—	1
22	1	—	—	1
Total	391	832	193	1,124
Average age	14.70 years	15.04 years	14.79 years	15.15 years
Estimated variance	2.41	2.16	2.36	2.21
Significance of difference	Significant at the 1.0% level		Significant at the 1.0% level	

6) Age of first menstruation

The results of comparison of the average age of first menstruation among the breast cancer cases and the control cases are shown in Table 33. In urban districts, the average age of first menstruation was 14.70 among the cancer cases and 15.04 among the controls, while in rural districts, it was 14.79 among the former and 15.15 among the latter, showing that the first menstruation tends to come earlier among the breast cancer cases with a significant difference.

7) Rates of live-birth, still-birth, spontaneous and artificial interruption of pregnancy.

For the purpose of comparing the rates of live-birth, still-birth of over seven completed months of gestation and spontaneous and artificial interruption of pregnancy for the breast cancer cases group with those for the controls group, the rates of the frequencies of these items to the total number of pregnancies, counted as the total sum of the frequencies of these four items, were computed for each of the cancer group and the control group. Considering that the difference in the frequency of pregnancy by individuals might influence these rates, both groups were divided into three subgroups, those of unipara—tripara, quadripara—sexpara and septipara and over.

As shown in Table 34, the live-birth rate is always lower among the cancer cases than among the controls with a significant difference. The still-birth rate is significantly higher only in the group of women of septipara and over among the cancer cases, but in all the other subgroups, the difference, if any, is not significant. The rate of spontaneous interruption of pregnancy is higher among the cancer cases except in the group of septipara and over in rural, but the difference is large enough to be significant only in the group of quadripara—sexpara in urban districts and the group of unipara—tripara in rural districts. The rate of artificial interruption of pregnancy is significantly larger in all the subgroups among the cancer cases than the control cases. Although we got the data described above, we are rather hesitant at the present moment in inducing some definite conclusions from them, because we know that our approach is not necessarily satisfactory in its analysis method and, adding to that, there is room for doubting the accuracy of statements given by the controls under such a process of investigation as we took. As a matter of fact, the past history of artificial interruption of pregnancy, for example, is considered to be liable to be evaded in answering the enquête. It is hoped that a better method be devised for checking the result obtained here.

8) Infant mortality rate

We examined the difference between the rate of infant deaths of under one year of age to the total live-births for the babies born from the breast cancer cases

Table 34. Percentage of Total Number of Live Births, Stillbirths, Spontaneous and Artificial Interruption of Pregnancies to the Total Number of Pregnancies for Cancer Cases and Control Cases

Number of births		Total number of pregnancies	Live births		Still births (over 7 completed months of gestation)		Spontaneous interruption of pregnancies		Artificial interruption of pregnancies	
			Number	%	Number	%	Number	%	Number	%
	Urban									
1 to 3	Patients	304	260	85.5	10	3.3	20	6.6	14	4.6
	Controls	557	510	91.6	10	1.8	25	4.4	12	2.2
	Significance of difference		**		(−)		(−)		*	
4 to 6	Patients	551	464	84.2	7	1.3	47	8.5	33	6.0
	Controls	1,423	1,319	92.7	24	1.7	46	3.2	34	2.4
	Significance of difference		***		(−)		***		***	
7 and over	Patients	275	237	86.2	10	3.6	8	2.9	20	7.3
	Controls	1,401	1,313	93.7	18	1.3	35	2.5	35	2.5
	Significance of difference		***		**		(−)		***	
	Rural									
1 to 3	Patients	129	111	86.0	3	2.3	8	6.2	7	5.4
	Controls	668	628	94.0	12	1.8	14	2.1	14	2.1
	Significance of difference		***		(−)		*		*	
4 to 6	Patients	259	238	91.9	3	1.2	10	3.9	8	3.1
	Controls	1,968	1,877	95.4	27	1.4	43	2.2	21	1.1
	Significance of difference		*		(−)		(−)		**	
7 and over	Patients	254	228	89.8	4	1.6	5	2.0	17	6.7
	Controls	2,692	2,552	94.8	38	1.4	70	2.6	32	1.2
	Significance of difference		**		(−)		(−)		***	

* Denotes significance at the 5% level.
** Denotes significance at the 1% level.
*** Denotes significance at the 0.1% level.

and that for the babies born from the control women. In the same way as the one applied in the previous paragraph, each group of the breast cancer cases and the control cases was devided into three categories of unipara—tripara, quadripara —sexpara and septipara and over.

As shown in Table 35, no significant difference was found in any subgroups between the infant death rate for babies born from the breast cancer cases and that for babies born from the controls.

9) Mode of feeding the child

Table 35. Number and Rate of Infant Deaths for Babies Born from Breast Cancer Cases and those Born from Control Cases

Number of births		Total number of live births	Number of infant deaths	Infant death rate (%)	Significance of difference
	Urban				
1 to 3	Patients	260	16	6.2	(—)
	Controls	510	36	7.0	
4 to 6	Patients	464	29	6.3	(—)
	Controls	1,319	75	5.7	
7 and over	Patients	237	26	11.0	(—)
	Controls	1,313	114	8.7	
	Rural				
1 to 3	Patients	111	1	0.9	(—)
	Controls	628	27	4.3	
4 to 6	Patients	238	14	5.9	(—)
	Controls	1,877	124	6.6	
7 and over	Patients	228	24	10.5	(—)
	Controls	2,552	200	7.8	

Let us observe the difference by the mode of feeding the babies. The percentages of the babies fed with mother milk, bottle milk and with mixed feeding in the total number of live-births born from the breast cancer cases were compared with the corresponding figures in the total live-births born from the control cases. The results, as shown in Table 36, revealed that mother milk fed babies were

Table 36. Number and Percentage of Childbirths Classified by Modes of Feeding the Children among Breast Cancer Cases and Control Cases

		Total number of children	Children fed with mother milk		Children fed with both mother milk and bottle milk		Children fed with bottle milk	
			Number	%	Number	%	Number	%
Urban	Patients	916	704	76.9	179	19.5	33	3.6
	Controls	3,092	2,461	79.6	468	15.1	163	5.3
	Significance of difference		(—)		**		*	
Rural	Patients	544	435	80.0	100	18.4	9	1.7
	Controls	4,956	4,229	85.3	578	11.7	149	3.0
	Significance of difference		***		***		(—)	

* Denotes significance at the 5% level.

** Denotes significance at the 1% level.

*** Denotes significance at the 0.1% level.

fewer in percentage among those born from the breast cancer cases, both in urban and rural districts, the difference being significant only in rural at the level of 0.1%.

10) Lactation status with reference to the side of breast cancer development

The frequency of disturbance in milk secretion during the time of lactation was studied in comparison by cancer cases and the controls. Taking the lactation period followed by each child-birth as enumeration unit, the status of lactation experienced at all past births by the cancer cases were checked and were compared with those of the controls. As shown in Table 37, the rate of right side hyposecretion of milk among the right breast cancer cases was significantly higher than among the controls and the same applies to the left side breast cancer cases, both in urban and rural districts. In urban districts, the rate of disturbed milk secretion of the right breast among the left side cancer cases is also higher than among the controls. Among the both sides cancer cases, right side hyposecretion was more frequent than the controls in urban districts. Whereas, in the rural districts, the rates of any side and both sides hyposecretion were higher among the bilateral breast cancer cases than among the controls. But after all, the number of such bilateral cancer cases was too small for any precise assessment of the significance of the difference. From these results, it was inferred that among the cases of unilateral cancer cases, there were more cases who had had experiences of disturbed milk secretion from the breast of the side on which cancer developed later on.

Observing the status of milk hyposecretion with the control cases in Table 37, it is noted that, both in urban and rural districts, the cases of bilateral disturbance are most frequent and, of the cases of unilateral hyposecretion, the left side cases are more frequent than the right side cases. The rate of feeding cases with hyposecretion in either side of breast to the total feeding cases was found to be significantly larger in left side compared with in right side breast, both in urban and rural. In many of the literatures on this subject, it has been frequently pointed out that cancer is more frequent in the left than in the right breast. In our investigation, it was found that, among the control cases, hyposecretion of milk was also more frequent in the left breast with a significant difference. For finding out the cause why cancer of the breast is more frequent on the left side, it seems we should first make it clear why dyslactation of the left breast is more frequent than that of the right.

11) Pain or tenseness in the breast related with menstrual cycles

Comparing the rate of cases that had experienced pain or tenseness of the breast in relation to any stage of the menstrual cycles among the breast cancer cases with that among the controls, as shown in Table 38, it was proved that the rate

Table 37. Number and Percentage of Feeding Cases with Poor Milk Secretion Classified by Side of Breast among Breast Cancer Cases and Control Cases

		Total number of feeding cases	Cases with poor milk secretion					
			in right-side breast		in left-side breast		in both sides breast	
			Number	%	Number	%	Number	%
Urban	Patients (right-side)	383	29	7.6	13	3.4	66	17.2
	Controls	3,141	46	1.5	75	2.4	483	15.4
	Significance of difference		***		(−)		(−)	
	Patients (left-side)	515	15	2.9	59	11.5	77	15.0
	Controls	3,141	46	1.5	75	2.4	483	15.4
	Significance of difference		*		***		(−)	
	Patients (both-sides)	23	7	30.4	—	0	—	0
	Controls	3,141	46	1.5	75	2.4	483	15.4
	Significance of difference							
Rural	Patients (right-side)	241	16	6.6	5	2.1	30	12.4
	Controls	5,067	110	2.2	178	3.5	511	10.1
	Significance of difference		***		(−)		(−)	
	Patients (left-side)	288	11	3.8	36	12.5	36	12.5
	Controls	5,067	110	2.2	178	3.5	511	10.1
	Significance of difference		(−)		***		(−)	
	Patients (both-sides)	28	6	21.4	2	7.1	6	21.4
	Controls	5,067	110	2.2	178	3.5	511	10.1
	Significance of difference							

* Denotes significance at the 5% level.

*** Denotes significance at the 0.1% level.

was higher among the former than among the controls in urban districts with a significant difference at the level of 1%, but not significantly in rural districts.

12) Anamnesis of the breast diseases

The number of the cases with past experience of diseases of breast among the cancer cases was compared with that of the controls. The past disease was mastitis in nearly all the cases. As shown in Table 39, the rate was higher both in urban and rural districts among the cancer cases with a significant difference.

Table 38. Number and Percentage of Cases who have Had Pain or Tenseness in Breast in Relation to Menstrual Cycle among Breast Cancer Cases and Control Cases

		Total number	Experienced		Significance of difference
			Number	%	
Urban	Patients	361	85	23.5	Significant at the 1.0% level
	Controls	757	122	16.1	
Rural	Patients	173	24	13.9	(−)
	Controls	1,040	111	10.7	

Table 39. Number and Percentage of Cases with Anamnesis of Breast Diseases, among Breast Cancer Cases and Control Cases (co.)

		Total number	Cases with anamnesis		Significance of difference
			Number	%	
Urban	Patients	387	71	18.3	Significant at the 0.1% level
	Controls	769	61	7.9	
Rural	Patients	177	37	20.9	Significant at the 0.1% level
	Controls	1,006	106	10.5	

13) Anamnesis of myoma of uterus

As shown in Table 40, the rate of the cases that had experience of myoma was higher among the breast cancer cases than among the controls with the significant difference only in rural districts.

We have also compiled the data on the cases with anamnesis of endometritis and with diseases of female genital organs other than uterus, but we will omit the results herein.

Table 40. Number and Percentage of Cases with Anamnesis of Myoma Uteri among Breast Cancer Cases and Control Cases (co.)

		Total number	Cases with anamnesis		Significance of difference
			Number	%	
Urban	Patients	372	17	4.6	(−)
	Controls	528	12	2.3	
Rural	Patients	170	7	4.1	Significant at the 5% level
	Controls	870	15	1.7	

14) Experience of use of estrogen preparation

The rate of the cases with experience of using estrogen preparation among the

breast cancer cases was, as shown in Table 41, significantly larger than that among the controls in urban districts, but smaller in rural districts with a difference not large enough to be significant.

Table 41. Number and Percentage of Cases with Past Experience of Use of Estrogen Preparation among Breast Cancer Cases and Control Cases (co.)

		Total number	Experienced		Significance of difference
			Number	%	
Urban	Patients	385	65	16.9	Significant at the 5% level
	Controls	743	88	11.8	
Rural	Patients	170	12	7.1	(−)
	Controls	1,102	90	8.2	

(III) Cancer of the Cervix Uteri

Of the 1,959 cases of uterus cancer, 1,881 were of cervical and only 78 of corpus cancer. Since there seems to be wide difference in the etiological factors between cancers of the cervix and the corpus uteri, we have investigated the cervical cancer cases only in exclusion of the cases of corpus cancer and arrived at the results discussed below. The number of corpus cancer cases is so small that we will not give the data for this site. The number of cervical cancer cases classified by urban and rural and age-group is shown in Table 42.

Table 42. Number of Cervical Cancer Cases under Investigation by Age-group and Urban and Rural

Age	Urban	Rural
All ages	1,022	859
0～29 years	12	16
30～34	50	30
35～39	102	103
40～44	194	139
45～49	200	145
50～54	175	161
55～59	119	124
60～64	89	73
65～69	49	39
70～74	19	15
75～79	4	3
80 years and over	3	5
Age unknown	6	6

1) Marital status

The number of cervical cancer cases as classified by age-group and marital status is as shown in Table 43. There were only two unmarried women among the cervical cancer cases. The percentages of the cases of different marital status of 30 years of age and over are shown in Table 44 in collation with the corresponding percentages of the total female population of Japan as given in the national census of 1950. For testing the significance of the differences, the table of F-distribution was used. The percentage of the married was significantly larger among the cancer cases in all the age-groups, but the percentage of the widowed and divorced was

smaller among the cancer cases with significant difference except in the 40–49 age-group in urban and in the 30–39 age-group in rural districts. Thus, the percentage of married women among the cervical cancer cases is larger than that of female population in general, while that of single, widowed and divorced women

Table 43. Number of Cervical Cancer Cases Classified by Marital Status

Age	Urban				Rural			
	Total	Unmarried	Married	Widowed or divorced	Total	Unmarried	Married	Widowed or divorced
under 30 years	12	2	10	—	16	—	15	1
30 to 39 years	147	—	138	9	132	—	122	10
40 to 49 years	377	—	317	60	282	—	249	33
50 to 59 years	287	—	216	71	279	—	228	51
60 years and over	158	—	80	78	133	—	82	51

Table 44. Comparison of Percentages of Cases Classified by Marital Status among Cervical Cancer Cases with that among General Female Population as Given in National Census in 1950

			Total	Unmarried	Married	Widowed or divorced
Urban	30 to 39 years	Patients	100	0	93.9	6.1
		Census	100	5.6 **	82.0***	12.5 *
	40 to 49 years	Patients	100	0	84.1	15.9
		Census	100	2.3 **	78.2**	19.5
	50 to 59 years	Patients	100	0	75.3	24.7
		Census	100	1.4 *	62.9***	35.6***
	60 years and over	Patients	100	0	50.6	49.4
		Census	100	1.9	29.3***	68.8***
Rural	30 to 39 years	Patients	100	0	92.4	7.6
		Census	100	3.6 **	83.7**	12.7
	40 to 49 years	Patients	100	0	88.3	11.7
		Census	100	1.5 *	81.9**	16.6***
	50 to 59 years	Patients	100	0	81.7	18.3
		Census	100	1.2 *	70.1***	28.7***
	60 years and over	Patients	100	0	61.7	38.3
		Census	100	1.6	36.7***	61.7***

* Denotes significance at the 5% level.

** Denotes significance at the 1% level.

*** Denotes significance at the 0.1% level.

was found to be smaller among the former.

2) Age of first marriage

The frequency distribution and the average of age of first marriage of the

Table 45. Frequency Distribution and Average of First Marriage among Cervical Cancer Cases and Control Cases

Age of first marriage	Urban		Rural	
	Patients	Controls	Patients	Controls
13 years	—	—	—	1
14	1	3	2	4
15	11	8	15	22
16	36	15	48	61
17	91	56	82	114
18	126	82	119	124
19	157	126	146	151
20	129	91	111	144
21	127	97	72	141
22	84	114	90	91
23	65	60	56	92
24	41	47	27	62
25	42	31	17	31
26	16	29	11	23
27	16	10	3	15
28	9	13	8	16
29	11	6	2	3
30	4	5	1	—
31	—	1	2	5
32	—	5	2	5
33	—	—	—	2
34	—	1	—	2
35	1	—	—	2
36	—	—	—	2
37	—	—	—	3
38	1	—	—	2
39	—	—	—	1
40	—	1	—	—
43	—	—	—	1
Total	968	801	814	1,120
Average age	20.44 years	21.04 years	19.91 years	20.57 years
Estimated variance	9.00	10.07	7.64	12.60
Significance of difference	Significant at the 1.0% level		Significant at the 1.0% level	

cervical cancer cases and of the female control cases are shown in Table 45. In urban districts, the average age of first marriage was 20.44 among the cancer cases and 21.04 among the control cases, and in rural districts, 19.91 among the cancer cases and 20.57 among the controls. The difference was significant at the level of 1% in both urban and rural districts, that of the cancer cases being

Table 46. Frequency Distribution and Average of Age of First Delivery among Cervical Cancer Cases and Control Cases

Age of first delivery	Urban		Rural	
	Patients	Controls	Patients	Controls
14 years	—	—	—	1
15	1	—	—	2
16	4	3	6	7
17	27	15	23	28
18	60	34	65	66
19	92	62	99	103
20	120	80	114	126
21	112	67	91	138
22	126	95	84	136
23	80	95	88	105
24	80	68	63	85
25	54	44	35	61
26	46	36	22	39
27	27	42	19	26
28	14	16	8	25
29	7	18	14	15
30	14	12	2	9
31	9	4	2	5
32	6	2	3	6
33	3	6	4	7
34	2	2	2	2
35	—	5	—	2
36	3	2	—	2
37	1	—	—	2
38	—	—	1	2
39	—	1	—	1
40	—	1	—	1
41	—	—	—	1
Total	888	710	745	1,003
Average age	22.21 years	22.94 years	21.69 years	22.28 years
Estimated variance	11.32	13.19	9.77	12.92
Significance of difference	Significant at the 1.0% level		Significant at the 1.0% level	

always lower. It is interesting that this result is in total contrast with that of breast cancer cases.

3) Age of first delivery

The frequency distribution and the average of the age of first delivery among the cervical cancer cases and the controls are as shown in Table 46. The average age of first delivery was 22.21 among the cancer cases and 22.94 among the controls in urban districts and 21.69 and 22.28 respectively in the rural districts. The difference is significant at the level of 1% in both the districts, the cancer cases showing the younger age in average. In this respect too, the result was contrary to that with the breast cancer cases.

4) Number of children

Of the cervical cancer cases of ever-married and of 30 years of age and over, the frequency distribution of the number of children born from them was set up classified by age-group of mothers, and the average number of children was computed, as shown in Table 47. Upon comparing this result with the average number of children of the general female population of ever-married as given in the national census and testing the difference by t-test, we found that, as shown in Table 48, the average number of children born from cervical cancer cases was

Table 47. Frequency Distribution and Average of Number of Children Born from Ever-married Cervical Cancer Cases

Number of children	Urban				Rural			
	30 to 39 years	40 to 49 years	50 to 59 years	60 years and over	30 to 39 years	40 to 49 years	50 to 59 years	60 years and over
0	14	34	34	10	12	21	17	8
1	17	36	19	11	12	14	13	6
2	32	48	28	16	21	26	21	10
3	28	70	37	20	24	34	29	21
4	22	53	40	15	18	48	28	7
5	22	54	39	22	19	35	39	16
6	10	32	32	18	14	40	36	14
7	—	27	25	19	6	29	36	15
8	2	15	12	16	4	24	32	17
9	—	7	11	3	—	7	15	8
10	—	6	7	4	1	3	11	6
11	—	—	4	2	—	—	5	1
12	—	—	1	1	—	1	—	4
13	—	—	—	2	—	1	—	—
Total	147	382	289	159	131	283	282	133
Average number	2.99	3.79	4.25	4.84	3.52	4.55	5.22	5.36
Estimated variance	3.26	5.69	7.75	8.20	4.91	6.41	7.53	9.37

significantly higher in the 60–69 age-group in both urban and rural districts, significantly lower in the age-group of 40–49 in rural districts, than that of children born from general female population, but in the other groups, the difference was not significant. From these results, we can not get the conclusion that women with frequent delivery are more apt to suffer from cervical cancer. The com-

Table 48. Comparison of Average Number of Children Born from Ever-married Cervical Cancer Cases with that from Ever-married General Female Population, as Appearing in National Census in 1950

	Urban				Rural			
	30 to 39 years	40 to 49 years	50 to 59 years	60 years and over	30 to 39 years	40 to 49 years	50 to 59 years	60 years and over
Patients	2.99	3.79	4.25	4.84	3.52	4.55	5.22	5.36
Census	2.90	3.96	4.13	4.28	3.48	5.04	5.14	4.77
Significance of difference	(—)	(—)	(—)	*	(—)	**	(—)	*

* Denotes significance at the 5.0% level.

** Denotes significance at the 1.0% level.

Table 49. Frequency Distribution and Average of Age of First Menstruation among Cervical Cancer Cases and Control Cases

Age of first menstruation	Urban		Rural	
	Patients	Controls	Patients	Controls
11 years	7	3	7	2
12	58	22	33	24
13	195	104	105	124
14	211	189	171	221
15	228	223	221	315
16	135	146	149	255
17	74	89	70	109
18	25	42	29	58
19	6	10	5	12
20	1	3	1	2
21	1	1	—	1
22	1	—	1	1
23	1	—	1	—
Total	943	832	793	1,124
Average age	14.58 years	15.04 years	14.88 years	15.15 years
Estimated variance	2.53	2.16	2.40	2.21
Significance of difference	Significant at the 1.0% level		Significant at the 1.0% level	

parison of data including all stillbirths and abortions could not be carried out, due to lack of suitable control data.

5) Age of first menstruation

The frequency distribution of the age of first menstruation of the cervical cancer cases and the controls and the results of comparison of the average ages for the two groups are given in Table 49. The average age was 14.58 among the cancer cases and 15.04 among the controls in urban districts and 14.88 and 15.15 respectively in rural districts, the age being younger among the cancer cases in both the districts, with significant difference. This result is of the same

Table 50. Number and Rate (per 1,000 Births) of Anomalies in Pregnancy, Delivery and Puerperium among Cervical Cancer Cases and Control Cases

	Urban				Rural			
	Patients		Controls		Patients		Controls	
	Number	‰	Number	‰	Number	‰	Number	‰
Total number of pregnancy	4,611	1000.0	3,381	1000.0	4,570	1000.0	5,328	1000.0
Total number of anomaly	208	45.1	118	34.9	150	32.8	118	22.1
Toxaemias of pregnancy	5	1.1	24	7.1	2	0.4	44	8.3
Emesis	54	11.7	29	8.6	39	8.5	14	2.6
Nephritis	19	4.1	7	2.1	5	1.1	8	1.5
Pyelitis	1	0.2	2	0.6	1	0.2	—	0
Beriberi	7	1.5	4	1.2	12	2.6	3	0.6
Edema	7	1.5	1	0.3	—	0	1	0.2
Eclampsia	7	1.5	2	0.6	1	0.2	1	0.2
Ectopic pregnancy	11	2.4	5	1.5	4	0.9	2	0.4
Hydatid mole	7	1.5	2	0.6	5	1.1	—	0
Hydramnios	—	0	4	1.2	3	0.7	2	0.4
Oligohydramnios	—	0	—	0	4	0.9	—	0
Haemorrhage	4	0.9	11	3.3	10	2.2	3	0.6
Premature lapture of membrane	6	1.3	3	0.9	4	0.9	4	0.8
Premature separation of placenta	1	0.2	1	0.3	—	0	—	0
Placenta praevia	7	1.5	—	0	5	1.1	2	0.4
Abnormal presentation	11	2.4	7	2.1	12	2.6	8	1.5
Insufficient labour	3	0.7	4	1.2	6	1.3	3	0.6
Induced birth and forceps delivery	26	5.6	3	0.9	19	4.2	3	0.6
Laceration of cervix uteri	—	0	1	0.3	—	0	—	0
Laceration of perineum	1	0.2	1	0.3	—	0	—	0
Dystocia	3	0.7	2	0.6	1	0.2	1	0.2
Puerperal fever	19	4.1	4	1.2	10	2.2	10	1.9
Other anomalies	9	2.0	1	0.3	7	1.5	9	1.7

tendency with that concerning the breast cancer cases described above.

6) Anomalies in pregnancy, delivery and puerperium

The frequencies of anomalies in pregnancy, delivery and puerperium by kind per 1,000 pregnancies among the cervical cancer cases and the controls were collated as shown in Table 50. The total per mille frequency was 45.1 among the

Table 51. Number of Cases with and without Anamnesis of Diseases of Female Genital Organs and Number of Positive Cases by Kind of Disease among Cervical Cancer Cases and Control Cases

Age		Total number	Number of cases with anamnesis										Number of cases without anamnesis
			Total	Diseases of uterus				Diseases, other than uterus				Diseases of unspecified female genital organs	
				Total	Endometritis	Myoma of uterus	Others	Total	Ovariancystoma	Other diseases of ovary	Diseases of other female genital organs		
Urban													
30 to 39 years	Patients	131	22	16	8	1	7	8	1	1	6	—	109
	Controls	115	23	21	3	2	16	4	1	—	3	—	92
40 to 49 years	Patients	357	66	40	13	10	17	29	2	2	25	1	291
	Controls	293	51	45	10	8	27	11	4	2	5	4	242
50 to 59 years	Patients	270	50	30	10	9	11	17	4	—	13	5	220
	Controls	402	54	40	14	7	19	7	1	3	4	5	348
60 to 69 years	Patients	120	11	8	3	2	3	2	—	—	2	3	109
	Controls	292	35	27	9	8	10	5	3	1	1	3	257
70 to 79 years	Patients	19	3	2	1	—	1	1	—	—	1	—	16
	Controls	118	9	7	1	2	4	2	1	—	1	1	109
Rural													
30 to 39 years	Patients	119	26	20	6	2	12	6	—	1	5	1	93
	Controls	174	17	13	4	—	9	—	—	—	—	2	157
40 to 49 years	Patients	156	42	32	9	7	17	11	3	—	8	1	114
	Controls	457	59	46	12	10	24	9	5	4	1	6	398
50 to 59 years	Patients	262	46	29	12	7	10	15	5	1	9	3	216
	Controls	584	89	60	17	15	28	22	10	4	9	9	495
60 to 69 years	Patients	102	11	8	4	—	4	2	—	—	2	1	91
	Controls	446	41	37	13	7	17	2	—	1	1	3	405
70 to 79 years	Patients	17	3	1	—	1	—	2	—	—	2	—	14
	Controls	188	17	16	8	1	7	3	1	1	1	—	171

Note: Cases who had more than one disease in their anamneses were counted as so many separate cases, so that the figures does not always add to the total number of the cases with anamnesis.

cancer cases and 34.9 among the controls in urban districts and 32.8 among the patients and 22.1 among the controls in rural districts. The difference was significant at the level of 5% in the former and of 1% in the latter districts, the rate for cancer cases showing higher. For details by kind of anomaly, please refer to the Table 50, as they are too diversified and of too few cases in number for individual discussions here.

7) Anamnesis of diseases of female genital organs

The number of incidence of diseases of female genital organs experienced in the past by the cervical cancer cases and the controls is shown in Table 51, by decennial age-groups. We tried to find from these figures whether the cases with experiences of diseases of the genital organs other than uterus cancer were more frequent among the cervical cancer cases. For this purpose, we made comparison of the frequencies of all uterus diseases other than cancer, of endometritis and of myoma uteri in the anamneses of the cervical cancer cases and the controls of all age-groups.

In Table 52, the percentages of those with past experience of any uterus disease in both groups are shown. In rural districts, the percentage is significantly larger among the cancer cases than among the controls, while in urban districts, it is smaller, only with an insignificant difference though.

As shown in Tables 53 and 54, the percentages of the cases with endometritis

Table 52. Number and Percentage of Cases with Anamnesis of Diseases of Uterus among Cervical Cancer Cases and Control Cases (co.)

		Total number	Cases with anamnesis		Significance of difference
			Number	%	
Urban	Patients	897	96	10.7	(—)
	Controls	736	97	13.2	
Rural	Patients	656	90	13.7	Significant at the 1.0% level
	Controls	959	90	9.4	

Table 53. Number and Percentage of Cases with Anamnesis of Endometritis among Cervical Cancer Cases and Control Cases (co.)

		Total number	Cases with anamnesis		Significance of difference
			Number	%	
Urban	Patients	897	35	3.9	(—)
	Controls	736	24	3.3	
Rural	Patients	656	31	4.7	Significant at the 5.0% level
	Controls	959	27	2.8	

Table 54. Number and Percentage of Cases with Anamnesis of Myoma Uteri among Cervical Cancer Cases and Control Cases (co.)

		Total number	Cases with anamnesis		Significance of difference
			Number	%	
Urban	Patients	897	22	2.5	(−)
	Controls	736	17	2.3	
Rural	Patients	656	17	2.6	(−)
	Controls	959	17	1.8	

Table 55. Number of Cases with and without Anamnesis of Venereal Diseases and Number of Positive Cases by Kind of Disease among Cervical Cancer Cases and Control Cases

Age		Total number	Number of cases with anamnesis				Number of cases without anamnesis
			Total	Syphilis	Gonorrhea	Other and unspecified	
Urban							
30 to 39 years	Patients	125	18	5	12	1	107
	Controls	160	3	1	2	—	157
40 to 49 years	Patients	444	34	13	20	1	410
	Controls	401	8	4	5	—	393
50 to 59 years	Patients	255	23	11	13	—	232
	Controls	522	13	6	7	—	509
60 to 69 years	Patients	116	4	2	3	—	112
	Controls	356	9	5	1	1	347
70 to 79 years	Patients	19	1	—	1	—	18
	Controls	141	3	2	1	—	138
Rural							
30 to 39 years	Patients	114	9	4	6	—	105
	Controls	212	3	3	—	—	209
40 to 49 years	Patients	260	20	14	7	—	240
	Controls	531	11	8	2	1	520
50 to 59 years	Patients	250	24	12	12	—	226
	Controls	697	11	—	10	1	686
60 to 69 years	Patients	97	3	1	2	—	94
	Controls	547	9	3	6	—	538
70 to 79 years	Patients	17	1	1	—	—	16
	Controls	233	3	2	1	—	230

(Note) See note of Table 51.

and with myoma uteri in their anamneses were found always higher among the cervical cancer cases than among the controls, but the differences were not significant, except in the cases with experience of endometritis in rural districts.

8) Anamnesis of venereal diseases

Table 55 shows the numbers of cervical cancer cases and controls with experience of venereal diseases in anamneses, classified by kind of disease and decennial age-group. In Tables 56 and 57, the percentages of those with syphilis and gonorrhea in their anamneses are shown respectively.

The percentage of cases with experience of syphilis was larger among the cancer cases both in urban and rural districts with a difference of significance at the level of 0.1%.

The percentage of cases with gonorrhea in their anamneses was also significantly higher than that of controls, both in urban and rural districts.

Since, however, the cancer cases had been inquired by physicians in hospitals and the controls by health center members, including public health nurses, the probability of negative answers to be falsely given in presumably much larger among the latter. Accordingly, it is difficult to deduce anything from this observation about the biological significance of the relation between the incidence of cervical cancer and that of venereal diseases.

9) Experience of curettage of endometrium

Table 56. Number and Percentage of Cases with Anamnesis of Syphilis among Cervical Cancer Cases and Control Cases (co.)

		Total number	Cases with anamnesis		Significance of difference
			Number	%	
Urban	Patients	959	31	3.2	Significant at the 0.1% level
	Controls	866	9	1.0	
Rural	Patients	738	32	4.3	Significant at the 0.1% level
	Controls	1,372	12	0.9	

Table 57. Number and Percentage of Cases with Anamnesis of Gonorrhea among Cervical Cancer Cases and Control Cases (co.)

		Total number	Cases with anamnesis		Significance of difference
			Number	%	
Urban	Patients	959	49	5.1	Significant at the 0.1% level
	Controls	866	11	1.3	
Rural	Patients	738	27	3.7	Significant at the 0.1% level
	Controls	1,372	11	0.8	

In consideration of the possibility of such an operational invasion of the uterus as curettage of endometrium in causing cervical cancer, the percentages of the cases having such an experience among the cervical cancer cases and the controls were investigated. As shown in Table 58, the percentage was found higher among the cancer cases with a difference significant at the level of 0.1%.

Table 58. Number and Percentage of Cases that Had Experience of Curettage of Endometrium among Cervical Cancer Cases and Control Cases (co.)

		Total number	Experienced		Significance of difference
			Number	%	
Urban	Patients	940	249	26.5	Significant at the 0.1% level
	Controls	996	182	18.3	
Rural	Patients	801	168	21.0	Significant at the 0.1% level
	Controls	1,367	188	13.8	

10) Experience of use of estrogen preparation

The percentages of the cases having experience of using estrogen preparation among the cervical cancer cases and the controls are shown in Table 59. The percentage was lower among the cervical cancer cases both in urban and rural districts, but with significant difference in neither of the districts. This fact is interesting if we observe in comparison with the result obtained in the breast cancer cases.

Table 59. Number and Percentage of Cases with Past Experience of Use of Estrogen Preparation among Cervical Cancer Cases and Control Cases (co.)

		Total number	Experienced		Significance of difference
			Number	%	
Urban	Patients	871	82	9.4	(−)
	Controls	999	116	11.6	
Rural	Patients	743	41	5.5	(−)
	Controls	1,359	109	8.0	

11) Blood type

Next, we tried to ascertain whether there is any difference in the distribution of blood types among the cervical cancer cases from that among the general Japanese population. As the figures for the general population, we utilized the values reported by Kobayashi, as we have done in the cases of stomach cancer. As shown in Table 60, the relative frequency of A type cases was larger among the cervical cancer cases, with a significant difference at the level of 1%.

Table 60. Distribution of ABO Blood Type among Cervical Cancer Cases and the Japanese in General

		Total	A	B	O	AB
Patients	Number	1,534	640	304	446	144
	%	100.0	41.7	19.8	29.1	9.4
Japanese† in general	Number	530,046	203,255	115,416	161,461	49,914
	%	100.0	38.3	21.8	30.5	9.4
Significance of difference			**	(—)	(—)	(—)

** Denotes significance at the 1% level.

† Distribution of blood type among the Japanese in general was obtained based on the Report by Kobayashi in the Japanese Journal of Criminology, 14 : 729-735, 1940.

(IV) Cancer of the Lung (primary)

The cases of primary lung cancer coming under this survey numbered 207, comprising male and female cases classifiable by age-group as shown in Table 61. The cases were few in number for detailed studies on a variety of items, so we will limit ourselves to discussing the data concerning smoking habit and anamnesis of lung diseases only.

Table 61. Number of Lung Cancer Cases under Investigation by Sex, Age-group and Urban and Rural

Age	Male		Female	
	Urban	Rural	Urban	Rural
All ages	99	67	21	20
0~29 years	1	4	1	—
30~34	2	1	—	2
35~39	4	2	1	1
40~44	5	4	1	2
45~49	13	10	2	1
50~54	12	9	2	3
55~59	21	11	1	3
60~64	18	9	8	7
65~69	16	12	2	1
70~74	3	4	2	—
75~79	3	—	—	—
80 years and over	—	—	—	—
Age unknown	1	1	1	—

1) Smoking habit

The rate of habitual smokers among the lung cancer cases of 30 years of age and over, as compared with that among the controls, was as shown in Table 62. Those who have given up the past habit of smoking have been included under the heading of habitual smokers. The result of comparison showed that the rate of habitual smokers was somewhat higher among the cancer cases, but there was no significant difference.

In Table 63, the daily quantity of smoked tobacco per capita of the habitual smokers among the lung cancer cases and the controls is shown, in number of cigarettes, the other products being converted in the rate of one gram of tobacco per one cigarette. Upon testing the significance of difference, it was found that

the average quantity was higher among the lung cancer cases, with the difference significant at the level of 1%.

Table 62. Number and Percentage of Habitual Smokers among Male Lung Cancer Cases and Control Cases (co.), both of Age 30 Years and over

		Total number	Habitual smoker		Significance of difference
			Number	%	
Urban	Patients	96	85	88.5	(—)
	Controls	936	791	84.5	
Rural	Patients	62	55	88.7	(—)
	Controls	1,188	951	80.1	

Note: Habitual smokers including those who have given up smoking.

Table 63. Average Quantity of Tobacco Consumed Daily per Head by Male Habitual Smokers among Lung Cancer Cases and Control Cases (co.), in Numbers of Cigaretts

		Number of smoker	Average quantity (in numbers of cigarettes)	Estimated variance	Significance of difference
Urban	Patients	82	19.32	124.540	**
	Controls	579	13.84	81.314	
Rural	Patients	57	17.88	176.038	**
	Controls	732	13.17	74.144	

** Denotes significance at the 1% level.

Table 64 shows the number of habitual smokers classified by kind of tobacco products smoked.

Table 64. Number of Male Smokers among Lung Cancer Cases and Control Cases Classified by Kind of Tobacco Products Smoked

		Total number	Cigarette only	"KIZAMI" only	Others†
Patients	Urban	82	78	1	3
	Rural	57	45	12	—
Controls	Urban	1,259	1,102	84	73
	Rural	1,676	1,103	361	212

† Others including those who smoke both cigarettes and "KIZAMI".

2) Anamnesis of lung diseases

The results of study on the number of cases with various kinds of lung diseases in their anamneses among the lung cancer cases and the controls are listed in Table 65.

Table 65. Number of Cases with and without Anamnesis of Lung Diseases and Number of Positive Cases by Kind of Disease among Lung Cancer Cases and Control Cases

		Total number	Number of cases with anamnesis							Number of cases without anamnesis
			Total	Pulmonary tuberculosis	Silicosis	Pneumonia	Bronchiectasis	Paragonimiasis	Other and unspecified diseases	
Lung Cancer Cases										
Male	Urban	98	29	12	1	8	1	—	8	69
	Rural	67	17	4	—	10	—	—	3	50
Female	Urban	21	2	1	—	1	—	—	—	19
	Rural	20	5	1	—	3	—	—	1	15
Control Cases										
Male	Urban	1,623	286	148	—	84	13	—	46	1,337
	Rural	2,236	273	98	1	113	6	1	63	1,963
Female	Urban	1,621	190	71	—	75	9	—	43	1,431
	Rural	2,273	192	55	—	77	14	—	49	2,081

Note: See note of Table 51.

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The results of the epidemiological study on cancer in Japan we have worked out were described in the above. Adding to these data introduced in the present paper, we obtained some data in connection with the medical status of the cancer patients as a part of our study, which we did not mention in this paper but published only in other paper written in Japanese. We have some other parts of the present study which are under tabulation or calculation still now and we are planning to publish as the supplementary report in the near future. The studies on the association of the duration of lactation with the breast cancer, on the familial aggregation of cancer are the examples of these parts.

It should be particularly noted that the results of the significance tests applied on many of the items presented in this paper give us the conclusions merely from the statistical point of view and these conclusions are of use so far as we utilize them as the tools for approach to the solution of problems. The results of the tests themselves do not necessarily lead us to the recognition of the truth. In conducting such type of investigation as we have done, it seems to be almost

impossible to get the absolutely perfect controls for comparison with the cases and we ourselves have to confess that the materials we used as controls were not so complete enough. We are looking forward to another similar investigation which will be carried out by more perfect method in the future. At the same time, we sincerely hope that this type of investigation will become to be conducted cooperated with many other countries.

要　旨

日本における癌の疫学的研究

——厚生科学研究癌疫学研究班の報告　(班長：緒方知三郎)——

製表・解析

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本文は1953年から1955年に至る間，厚生科学研究癌疫学研究班において行った癌の疫学的研究のうち，東北大学公衆衛生学教室において調査，製表，解析を担当した分の報告である。

この調査は次の3つの部分から成る。

1)　1948～1952 年の5年間において，43 大学病院及び癌研究会附属病院，国立東京第一病院に入院した癌患者の性別，年令別，部位別統計。

2)　45 大学病院及び癌研究会附属病院における子宮 (1,959 例)，乳房 (647 例)，胃 (2,475 例)，肝臓 (181 例)，胆路 (58 例)，肺 (207 例)，食道 (86 例)，前立腺 (69 例) の各癌患者についての疫学的研究。(但し，本報告においては子宮，乳房，胃，肺の癌患者の分のみ掲載)。

3)　上記病院に入院した胃癌及び子宮癌の患者についての医療調査。(本報告においてはこの分を掲載しない)。

なお本論文の発表に当つてよせられた日本生命保険協会および財団法人癌研究会の御好意に対して感謝します。

VAMPIRE'S AFFAIR

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